

The JOURNAL of
The American Society of Architectural Historians
Vol., 4, No. 3-4 July - October, 1944
Special Issue on MEDIEVAL ARCHITECTURE

CONTENTS

Introduction to the special issue	page 3
Some Current Studies in Early Medieval Church Architecture	page 4
by Kenneth John Conant	
Early Romanesque Church Towers of Touraine	page 9
by Carl K. Hersey	
Byzantine Architecture in Walachia to the end of the Sixteenth Century	page 24
by Zdenka Munzer	
The Pier in Gothic Architecture: especially in the Ile de France	page 36
by Clarence Ward	
A Definition of Gothic Architecture	page 42
The Bruton Church of 1683 and Two Contemporaries	page 43
by Thomas T. Waterman	
Current Research in Architectural History, 1944	page 47
by Carroll L.V. Meeks	
Book Review:	
Ernest Nash; ROMAN TOWNS	page 52
D.B. Steinman; BUILDERS OF THE BRIDGE	
A. Frenkley; STONES OF GLORY-STONES OF FRANCE	
News Items	page 55
Current Bibliography in Architectural History	page 60

Published by the Editor, Turpin C. Bannister,
at the School of Architecture and the Arts, of the
Alabama Polytechnic Institute, Auburn, Alabama.

The AMERICAN SOCIETY of ARCHITECTURAL HISTORIANS
founded 1940

Aims:

1. To provide a useful forum and to facilitate enjoyable contacts for all those whose special interest is the History of Architecture.
2. To foster an appreciation and understanding of the great buildings and architects of historic cultures.
3. To encourage research in architectural history, and to aid in disseminating the results of such research.
4. To promote the preservation of significant architectural monuments.

President: Kenneth John Conant, Harvard University

Vice-President: Carroll L.V. Meeks, Yale University

Secretary-Treasurer: Frank J. Roos, Ohio State University

Directors:

- to July, 1946 Turpin C. Bannister, Alabama Polytechnic Inst.
Richard Krautheimer, Vassar College
- to July, 1947 Ruth V. Cook, Harvard University
Clarence Ward, Oberlin College
- to July, 1948 Henry-Russell Hitchcock, Wesleyan College
Rexford Newcomb, University of Illinois

Local Chapters:

Boston-Cambridge: Kenneth J. Conant, president.

New York: Talbot F. Hamlin, president; Agnes Addison Gilchrist,
secretary-treasurer, 122 N. Washington Ave., Mt. Vernon, N.Y.

Washington: L.M. Leisenring, chairman; Milton Grigg, secretary,
6921 Georgia Ave., NW, Washington.

Memberships:

Annual Membership	\$3.00
Institutional Membership (libraries, depts. of architecture or art)	5.00
Contributing Membership	10.00
Patron Membership	25.00

Members are entitled to receive the JOURNAL

Address all inquiries to Dr. Frank J. Roos, Secretary, Dept. of
Art, Ohio State University, Columbus, Ohio

Editor's Note

Your editor asks forgiveness for long delaying this issue of the JOURNAL. The several contributors fulfilled their obligations promptly and no part of the stigma attaches to them. Sufficient cause may be found in conditions arising from your editor's assumption of new duties that have made it difficult to devote the necessary time either in amount or in consecutiveness. The understanding and patient forbearance of A.S.A.H. members is greatly appreciated.

INTRODUCTION to the special issue on MEDIEVAL ARCHITECTURE

From time to time A.S.A.H. has devoted whole issues of the Journal to particular problems of architectural history. The cumulative concentration of several minds on a special phase of our field forms an effective means of emphasis that can remind us of and stimulate new interest in numerous tantalizing questions that still remain unanswered.

In this issue five eminent scholars focus attention on Medieval Architecture, whose monuments have long suffered more fame than understanding. Surely no period has depended more for its interpretation on the peculiar enthusiasms of nineteenth-century historians. Romantic antiquarianism found in Georgian Gothick a welcome relief from neo-classical formality. Rickman and Pugin preached a more studious exploitation justified by nationalistic and ecclesiastical motives. Viollet-le-Duc championed Gothic constructivism.

Under the stimulus of men like Arthur Kingsley Porter, recent scholars have expanded our knowledge of the monuments of earlier medieval styles. We are beginning to recapture those missing links that will give continuity to the fascinating story of medieval architecture from the time of Constantine to seventeenth-century Virginia. Although the religious preoccupations of the medieval world ensured the architectural suzerainty of churches, we realize today that any age as vigorous and active as it was demands consideration from the vantage point of full cultural history. Castle, farmstead, guildhall, cornmill, bridge, and bastide can contribute indispensably to an appreciation of the sociological climate that evoked shrine and cathedral. We need an architectural Coulton to paint a panorama of medieval architecture.

Strange as it may seem, the influence of medieval architecture can still be discerned even in the work of self-sufficient devotees of contemporary dogmas. The "organic plan" of the English manor house, the "glass cage" of the Sainte-Chapelle, the multi-storied "skeleton structural system" of the Knochenaueramtshaus, the "skyscraper towers" of San Gimignano or Bologna, the naval arsenal at Venice, all have a familiar ring. How many present-day names of structural members and craft tools descend directly from the jargon of medieval journeymen! Nor should the potent virulence of revivalism go unmentioned. Too often buttresses cling to steel brackets for support, ready-made saints are framed in mill-work tracery, or microphoned sermons and electric organs labor against recalcitrant medieval acoustics. These very ineptitudes pay tribute to the persistent strength of the medieval tradition. It is the happy duty of modern architectural historians to correct such perversions and to reveal and emphasize the true and abiding lessons of that great age.

* * * * *

SOME CURRENT STUDIES IN EARLY MEDIAEVAL CHURCH ARCHITECTURE

by Kenneth John Conant

It is a pleasure to report that a serious architectural study of Old St. Peter's in Rome is about to be undertaken by Mr. Walter L. Creese of Harvard University. A complete account of that great building, so rich in historical associations, would be a lifetime work for an investigator; to put together in a series of systematic drawings our scattered knowledge of it will be a very considerable, but a rewarding, task. The widely reproduced Dehio restoration was, admittedly, a cavalier work--diagrammatic--and, in the half century which has passed since it was published, new information and better techniques have become available. A new sketch model, already attempted, has shown interesting facts regarding the building, and Mr. Creese will have all architectural historians in his debt when these and other matters have been studied through and published.

A similar study of the Lateran basilica would be more difficult and perhaps less rewarding, but we need to know the relationship between Old St. Peter's and the original cathedral of Rome, which was by some years the older building. Perhaps new studies would show that Old St. Peter's is wrongly credited as the first example of fully achieved monumental Christian church architecture. Professor Richard Krautheimer of Vassar College is working on a history of Early Christian church architecture; no one is more competent than he to answer such questions for us.

Another of the notable Constantinian church sites deserves further architectural study. I explored the general layout of the Sepulchre group in Jerusalem with the active collaboration of Miss Penelope P. Pattee of Radcliffe College. Messrs. Vincent and Abel (who of course did the same in connection with their monumental publication of the site) were not trained as architects, and it is quite possible to go beyond their work. Leaving the Martyrion basilica as a sketch, I carried forward a study of the Anastasis, baldacchino, and tomb at the Holy Sepulchre, as may be seen in my "Brief Commentary on Early Mediaeval Church Architecture."

Professor A. M. Friend is at present working on the ancient mosaics of the Jerusalem churches, and he will probably discover interesting things about their architecture. I am persuaded that a further study of the original Martyrion, with models, would be rewarding; moreover, a study of the Anastasis, the Calvary, and the Martyrion as they were after the rebuilding of 614-29 would most certainly repay a considerable effort.

Dr. Conant is Professor of Architecture in the School of Design, Harvard University. His recent Brief Commentary on Early Mediaeval Church Architecture (Johns Hopkins, 1943) clarified greatly the development of mediaeval structural solutions. His great monograph on the architectural history of the famous monastery churches at Cluny is eagerly awaited.

Architectural historians have been aware that Mr. Thomas Whittemore has accomplished an extensive work of restoration on the mosaics of St. Sophia, Constantinople. It is less widely known that a very meticulous architectural study by Dr. William Emerson and his field collaborator, Mr. Robert L. Van Nice, has been under way at the same time. They kindly furnished me with dimensions for a study of the first dome, which I published in the *American Journal of Archaeology* (volume xliii, 1939, no. 4, p. 589) with diagrams indicating the distortions of the structure. Half-plans showed the irregularities with graphic exaggeration, a fact not observed by Professor Emerson Swift when he redrew them, doubled over, to make complete plans (figures 30 and 31 of his *Hagia Sophia*, published in 1940 by the Columbia University Press). Revised figures taken in St. Sophia under less difficult conditions now show the layout of the great dome over a more nearly exact square, and a smaller lateral deformation of the dome, than my dimensions indicate--without affecting my theory of the building as given in Professor Swift's book (pages 158 to 162). Thus Professor Swift's table, appearing on page 159, is superseded, although the deformations were actually of the kind indicated. Interested students should refer to the very informative preliminary publication by Dr. Emerson and Mr. Van Nice, entitled "*Hagia Sophia, Istanbul; Preliminary Report of a Recent Examination of the Structure*," published in the *American Journal of Archaeology* (vol. xlvii, 1943, no. 4, p. 403). It will be some years before the magnificent data assembled by the authors can be worked through and made generally available. The result will be a monograph of first-rate importance. Meanwhile my sketch restoration, published in "*The Arts and Religion*" (Macmillan, 1944; A. E. Bailey, editor) will serve a useful purpose. Incidentally, this restoration should show stair-towers rising against the flank of the church, instead of the two bridges to the patriarchate. There is an opportunity for various architectural studies on the building while the great monograph is still in preparation. A series of reworked photographs showing the building without its later excrecences would be very useful, and the artist historian who produced them would have a very enjoyable experience in dealing with one of the world's finest architectural designs.

Perhaps the liberation of France will bring us the study of St. Simeon Stylites which was under way in connection with the restoration of the building in 1938. De Vogüé's work was shown to be imprecise, and Krenker's (the last to be published) was apparently incorrect to some extent. New light on the great building will be most welcome--this imposing church has never to my knowledge been represented satisfactorily in any publication. It is sincerely to be hoped that a good model will be made, and liberally photographed inside and out, when the final archaeological study is complete.

The American expedition which was excavating at Antioch turned up interesting remains of church architecture in that capital, and the director, Professor W. A. Campbell, of Wellesley, had formed a conjecture as to where the famous Constantinian cathedral, the octagonal Golden Church, would be found. This latter excavation, and solution of the riddles which depend on the church plan, must await a happier time. Meanwhile the area has become a part of the Turkish Republic.

Architectural historians will welcome a forthcoming book on Armenian art, "*Armenia and the Byzantine Empire*," by Professor Sirarpie Der Nersessian (Harvard University Press). The architecture is treated with

clarity; thus the book will save many students from the murky German of Strzygowski's "Baukunst der Armenier und Europa."

In an able thesis, Dr. Herwin Schaeffer of Harvard University has examined the perennial problem of the constitution of the monumental two-towered facade in Western mediaeval Christendom. Dr. Schaeffer shows that while the commonly accepted basic Syrian influence may be a fact, the mode of influence cannot now be proved, or even traced with certainty; that actually the two-tower motive may have been reinvented in the West as the adjunct of monastic antechurches. The supposedly Syrian example at Squillace (sixth century) remains vague. Less so is St. Denis, carefully studied by Professor Sumner McKnight Crosby in a plasticelle model. The Clunian series (from about 981 onward) is connected rather with church narthecies than with the naves, though the exterior effect is often like that of the later and fully integrated type of two-tower facade--which form, according to Dr. Schaeffer, appears on an important church for the first time about 1050, at Strasbourg cathedral. Dr. Schaeffer made a model of the west front at Strasbourg, but the church is worth much further study. In the Bulletin de la Societe des Amis de la Cathedrale de Strasbourg much interesting material has been presented by Hans Reinhard, Etienne Fels, and the Abbe Joseph Walter, who will doubtless continue their work.

The remarkable early eleventh-century church of St. Benigne, Dijon, is being investigated by Miss Alice Sunderland of Radcliffe College. The tantalizing contemporary description does not easily yield architectural certainties, but definite progress has been made, as shown in the tentative drawings which appear in "The Arts and Religion." The fabric and statos of the nave were quite as interesting as those of the rotunda, as known from Dom Plancher's engravings. We may hope for early completion and publication of Miss Alice Sunderland's work.

Dr. Elizabeth Sunderland, meanwhile, has been at work on the problem of early Romanesque vaulted churches. She is concerned with Charlieu, where she thoroughly investigated the excavation made for the Syndicat d'Initiative. Her restoration study of the eleventh- and twelfth-century priory church was published in the Art Bulletin, volume xxi (1939, #1), page 61. The rather sizeable tenth-century building, wooden-roofed at first, was divided into narrow aisles and vaulted before the end of the century. Dr. Sunderland has undertaken a correlative study of the Pierre at Jumièges, a tenth-century structure which may have been planned for vaulting. In any event, our knowledge of vaulted buildings in the tenth century is increasing, and with it our knowledge of the background of the Pilgrimage group of Romanesque churches.

Two of the Pilgrimage group are now being studied. Dr. Carl K. Hersey of the University of Rochester undertook, before the war, the highly involved church of St. Martin at Tours--a problem which has terrified many an architectural historian. With a persistence and patience which only a veteran archaeologist can appreciate, Dr. Hersey succeeded in proving that the transept, as rebuilt about 1050, was essentially a "Pilgrimage type" design, and vaulted, though it lacked the characteristic paired median columns of the triforium arcade. Preliminary publication was made in the Art Bulletin (volume xxv, 1943, no. 1, page 1). This article, closely argued, and I believe quite trustworthy, is of first-rate importance to those who are working on related problems, but it is only a beginning for St. Martin. The handsome early Gothic facade project, the apses, and the towers remain to be published. Most

difficult of all will be the restoration of the notable Early Christian church described--in lamentably imprecise terms--by Gregory of Tours. This will bring Dr. Hersey into the fascinating problem of the turritus apex and the plantation of towers; perhaps also the vestibule of St. Martin of Tours will come into this problem, for the church is reported as having had excelsos aditus.

Professor Ferdinand Rousseve, head of the fine arts department of Xavier University, New Orleans, is now engaged on a doctoral study of the church of St. Martial, Limoges. This building was published by Charles de Lasteyrie, but the latter did not achieve a satisfying architectural study. The great progress made in our knowledge of mediaeval Santiago and St. Martin of Tours will facilitate the new work on St. Martial, which would appear to be a younger contemporary of St. Martin, and perhaps the building where the characteristic Pilgrimage triforium design first appeared. Preliminary sketches show that St. Martial was a much handsomer building than the material heretofore published would indicate, and a model will probably be built to make this point abundantly clear.

Work on Cluny proceeds slowly. By far the most interesting recent development is the proof by Helen Kleinschmidt that the upper half of one of the sculptured figures of the Great Portal exists in the Museum of the Rhode Island School of Design at Providence. Miss Kleinschmidt's article, prepared for a forthcoming issue of the Bulletin of the Museum, presents the matter in detail. The fragment, which is fairly well preserved, came from the north spandrel, and its date (c. 1109-15) gives it a considerable importance in the history of Romanesque sculpture. Miss Kleinschmidt's doctoral thesis, now under way, will give us a trustworthy restoration of the elaborate and beautiful ensemble of the Great Portal. In this study two preliminary models have been used effectively.

One of the models just mentioned, made by Miss Anne Southard, shows the Chapel of St. Michael at scale 1 to 50. A very interesting architectural study could be made of the series of Michael chapels in their relationship to the sculptured portals, the processional nartheces, and the facade towers. In this connection it would surely be important to investigate Autun and Souvigny; work has already been done on several French and German examples, but not enough to make the development entirely clear.

For some years I have been concerned with the problems of the transition from Romanesque to Gothic, especially as regards the rib vault. The narthex design at Cluny and the axial chapel of St. Martin-des-Champs, Paris, show interesting early thin domed-up ribbed vaults which go far to explain the extraordinary columnar structure with Gothic vaults which will come to our knowledge through the studies of St. Denis by Dr. Sumner McKnight Crosby of Yale University. Since Dr. Crosby is in service, this very interesting development will have to await publication. Meanwhile, Dr. Marvin Chauncy Ross of the Walters Gallery, Baltimore, has identified three of the famous St. Denis sculptures--two heads at the Walters Gallery and one at the Fogg Museum in Cambridge. These heads, together with the Cluny head in Providence, mean a great deal to our knowledge of early twelfth-century sculpture.

Another of the Cluny studies under way is the conventual layout itself. I now have a preliminary plan which shows the relationship be-

tween the various parts of the monastery throughout its history. This was indeed a tedious work because of incomplete or ill-determined dimensions, but it yields desirable precisions for several sections of the group which have been hardly more than diagrams in my preliminary published plans. Perhaps it will be possible to suggest what the original monastery of 910-981 was like; certainly it will be possible to give a fair idea of the monastery as it was rebuilt under Abbot Odilo (994-1049). Of the latter group the most surprising item is doubtless the dormitory, which had 97 windows $2\frac{1}{2}$ feet wide in a periphery of 384 feet--in other words, practically the modern ribbon window if the texts are correct in reporting 97 windows.

Active service with the 15th Air Force prevents Lieutenant Harry H. Hilberry from continuing his studies on la Charite sur Loire at present. Before volunteering he had, however, made much progress in disentangling the architectural history of this "eldest daughter of Cluny," the only one which approached the architectural grandeur of the mother house. The augmented scheme of the priory church was never completed, but the design is important as showing progress toward the Gothic cathedral facade, and presenting many interesting comparisons with Vezelay and St. Denis. A beautiful model of the whole building in balsa wood now stands unfinished, though enough has been completed to show how majestic the facade would have been if the church had been completed. This model has also been very useful in showing what instructive interior pictures may be obtained by keeping the requirements of illustration in mind as work on a model proceeds. Such interior photographs give convincing effects which are but rarely to be obtained by drawing, and may usually be reworked to correct and develop the detail without destroying their photographic character. There are of course other uses for models in the historical research. Often a mere block model will clarify difficult relationships, and an important restoration which is likely to affect the critical judgment and artistic thinking of many people can be presented with much greater conviction if it has been studied with proper care and deliberation in the three dimensions. Any model is attractive because of its doll-house scale, and care must be taken to observe and meditate on the model until that element ceases to affect judgment.

Miss Caroline Cross of Radcliffe College constructed a striking model of the Cathedral of Tournai with its full, intended complement of nine towers--the five which exist, plus a pair of slender belfries at each of the major arms of the church. The belfries were not fanciful and romantic, but functional, for church bells were first available in large size and number at this time, and a blanket of sound could be laid over the city and the surrounding area from these towers. The extraordinary silhouette of the building certainly affected the design of Laon, Chartres, and Reims, all of which have come to us with their tower scheme incomplete. With thoughtful study (doubtless aided by models) and considerable discretion, it would be possible for an understanding student to approximate the intended silhouettes of the noble Gothic monuments just mentioned, and thus to elucidate an episode in the history of mediaeval architecture which deserves more attention than it has received.

* * * * *

EARLY ROMANESQUE CHURCH TOWERS OF TOURAINE

by Carl K. Hersey

The Romanesque church tower of the category to be discussed here usually served a military as well as a ritualistic and aesthetic function. Rising in various relationships to the body of the church, it was a donjon-like tower available as a place of retreat and position of defense in time of danger. The vaulted ground story was at times a porch giving access to the church; the second stage was a vaulted hall which doubled as a point of defense and as a chapel, and surmounting the whole was a belfry whence the sound of the bells commanded the countryside.

Bell towers have the unusual characteristic of containing within their walls an element of active movement created by swing and vibration and subjecting the masonry to dangerous pressures. At first the wooden staging that served as the actual support for the bells rested rigidly on ledges within the tower, in wall sockets, on corbels, or directly on the extrados of the heavy vault of the chamber below. While the bells remained small and the fortified towers massive, such practices were tolerable, but with larger bells and more vigorous methods of ringing them special devices were occasionally devised to distribute the vibrations and thus protect the tower from disintegration, as well as permit thinner walls and greater heights. The special stresses present posed novel structural problems which required solution within the general principles of Romanesque practice.

Towers challenge attention not only for their structural ingenuity, but also as decorative adjuncts to church design. French Romanesque towers are integral, animating units in the church silhouette; many are self-sufficient compositions embodying in their fabrics the current decorative and structural interests of the period and school to which they belong. Structurally and aesthetically, church towers not only offer evidence of the imagination of the builders, but also serve as indices of the artistic currents which carried ideas freely from one part of Europe to another.

It is a common phenomenon of the Romanesque period that designs fall into clearly defined groups, each expressive of its geographical school and in turn contributing its character to the individualism of that school. Such groups are distinguished from the standard, square-planned types that constitute the most common category by their great-

Dr. Hersey, head of the Department of Archaeology and Fine Arts, University of Rochester, is well known for his studies in Romanesque architecture. These include a monograph on Salmantine lanterns and a revealing reconstruction of the Abbey Church of St. Martin at Tours. The JOURNAL welcomes this analysis of proto-Gothic structural ideas embodied in the Romanesque towers of Touraine.

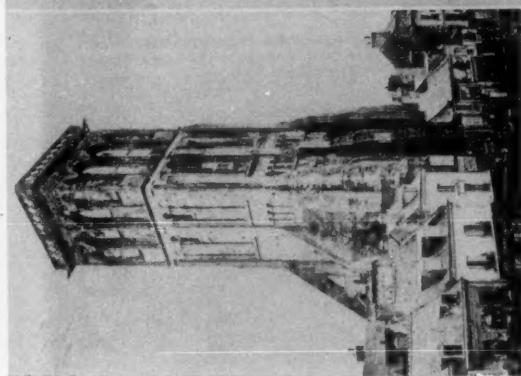
er elaboration and their more imaginative design and construction(1). They often owe their family resemblance to the influence of a distinguished model which in turn owes its design to the genius of some master builder who, challenged by the opportunities of a great edifice, creatively combined traditional elements into a composition of unusual beauty. Other communities, especially those of lesser status, imitated and adapted to their own requirements the dispositions of the admired prototype with varying degrees of originality and simplification.

Such a situation is discernible in a limited group of eleventh-century towers centering in Touraine where the complete evolution of a decorative and structural formula may be traced from its prototype stages to its climax and from thence into more modest radial expressions. So successful were its solutions to the special problems of bell-tower construction that its influence survived into the Gothic period. The group is distinguished by its eleventh-century date and by its geographical focus in Touraine. The date implies that it is sufficiently early to originate tendencies that later attain greater elaboration in the mature Romanesque period; the geographical concentration reinforces this possibility, since there is much evidence to indicate that the Romanesque style of Touraine was precocious and initiated forms and practices which were disseminated elsewhere (2).

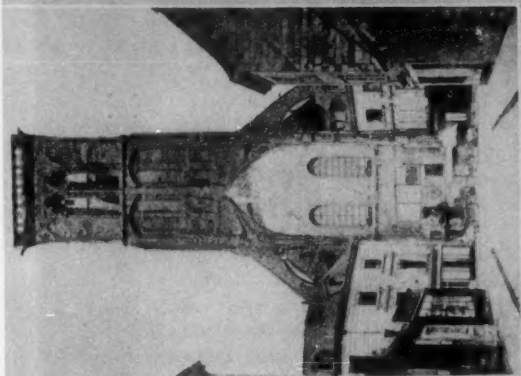
The Church of Saint-Martin at Tours, now almost completely destroyed, was the master edifice of Touraine and one of the greatest monuments of Romanesque Europe. With the return to knowledge of the main dispositions of its Romanesque format (3), it becomes evident that it is the hitherto lost key to many problems in medieval architecture. From as early as the fifth century to the middle of the twelfth the venerable church occupied an influential position in the evolution of the church tower. From the turritus apex recorded by Gregory of Tours as characterizing the fifth-century church built by Saint Perpet, through its successors of the Carolingian epoch, to the better known examples of the Romanesque and Gothic periods, the church of Saint-Martin contributed richly to the repertory of medieval towers.

Of particular importance were those added about 1050 to the ends of the transept of the edifice financed by its treasurer, Hervé de Buzançais, early in the eleventh century. The archaeological analysis of the still partially extant Tour Charlemagne (fig. 1) and its completely lost companion, the Tour Cadran, has been made elsewhere (4). It will suffice here to observe that the Tour Charlemagne, situated at the extremity of the north transept, may be recognized on sound evidence as a part of the extensive rebuilding campaign with which the canons of Saint-Martin sought to modernize their church about the mid-

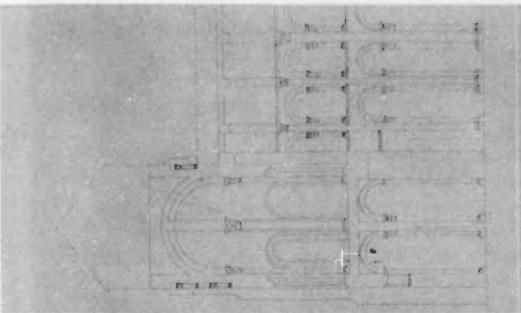
-
- (1) The towers of Poitou with their imbricated stone spires, the unique towers of Limousin, and those of the region of Toulouse are well known examples of such groups.
 - (2) See Abbe Plat, "La Touraine, berceau des écoles romanes du sud-ouest," Bulletin monumental, LXXVII, 1913, pp. 346-378, and L'art de bâtir en France des Romains à l'an 1100 d'après les monuments anciens de la Touraine, de l'Anjou, et du Vendomois, Paris, 1939.
 - (3) Carl K. Hersey, "The Church of Saint-Martin at Tours (903-1150)," The Art Bulletin, XXV, 1943, pp. 1-39.
 - (4) Ibid., pp. 9-13.



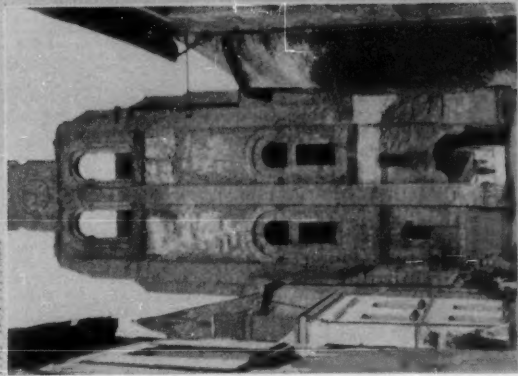
1. Tours - Tour Charlemagne - from the northeast



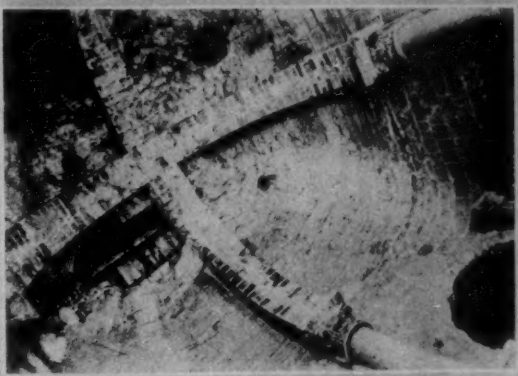
2. Tours - Tour Charlemagne - South face before collapse



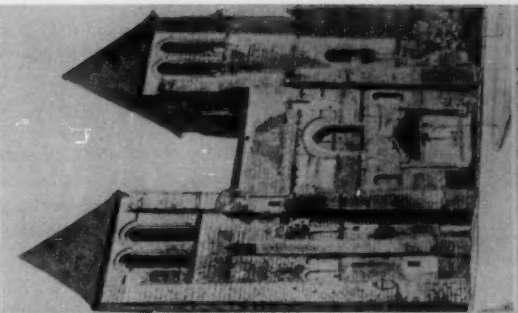
3. Tours - Tour Charlemagne - restored section as of ca. 1050 (library)



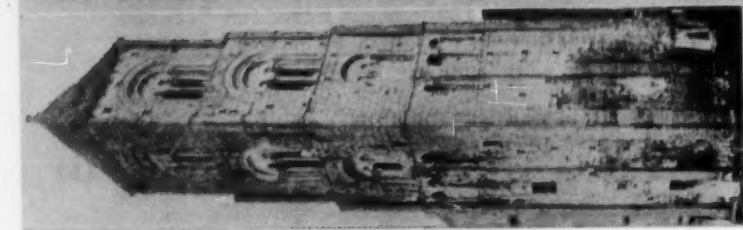
4. Chalon-sur-Saône - Tour Saint-Paul - (Photo Hersey)



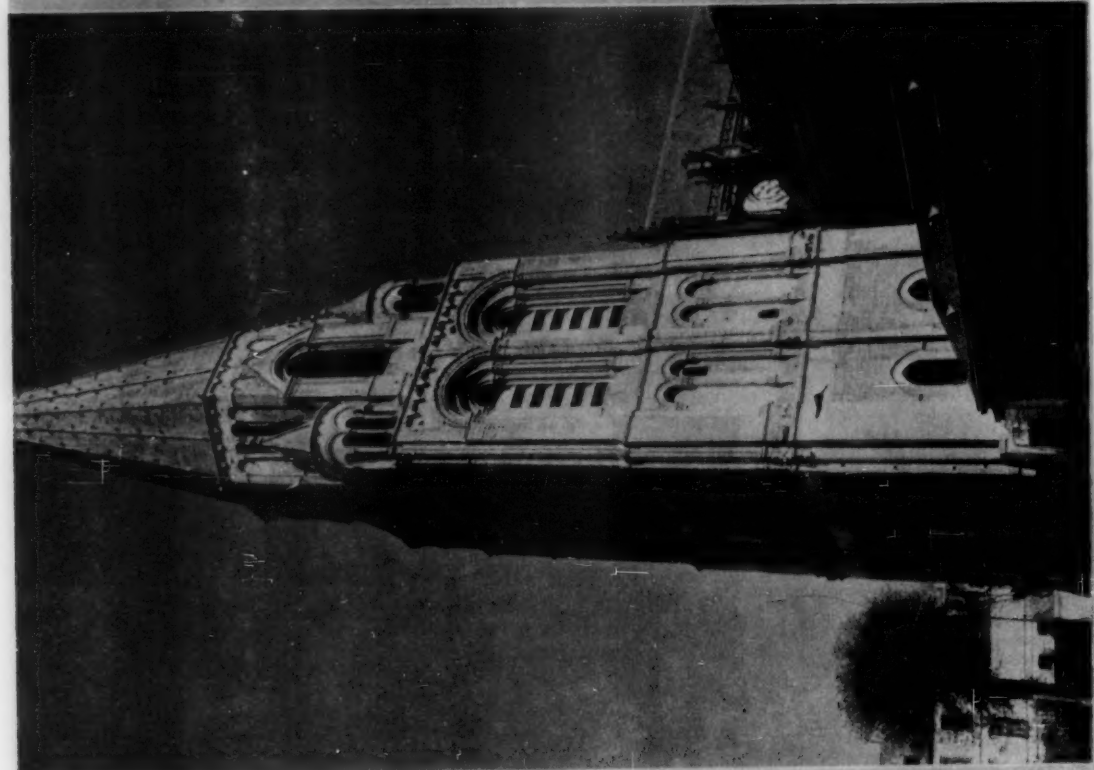
5. Chalon-sur-Saône - Tour Saint-Paul - Ribbed vault of second stage - (after Plat)



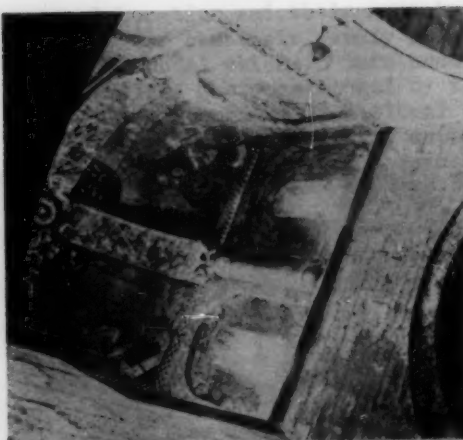
6. Chalon-sur-Saône - Tour Saint-Paul - West Facade



7 • Ver • St. Martin
Bell tower (after
Lefèvre-Pontalis)

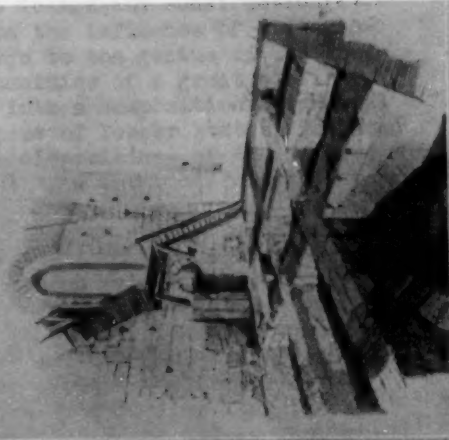


9 • Vendôme • La
Trinite • Tower
from southwest
(Photo Gudiol)



8 • Aubiac • Interior of Crossing
lantern (Photo Gudiol)

J.M. Thompson, Ill.



10 • Angers • Tour St. Aubin • rib
system above vault (after Aubert)

dle of the eleventh century by the substitution of fireproof barrel-vaulted construction for the inflammable wooden roofing that was traditional in most of Christian Europe until that time. By way of external elaboration they undertook to enhance the beauty of the edifice by incorporating into the ends of the transept-arms great tower-porches such as had enjoyed popularity in the Carolingian period and were currently finding favor in monumental Romanesque expression (5). Pride in the status of the great pilgrimage church justified these towers, which in suitable multiplicity were coming to be recognized as an outward symbol of preeminence and prestige.

The formula chosen for the Tour Charlemagne and its companion was a skillful elaboration of earlier practices in Touraine brought to a finely adjusted climax that inspired imitation elsewhere. The formula as crystalized at Saint-Martin consisted essentially of a square-planned tower of three stages strengthened externally with corner and medial buttresses. Internally the ground story was groin-vaulted; the second stage formed a spacious chamber (fig. 3), probably dedicated to Saint Michael, and covered with a domical vault carried on heavy ribs of rectangular section. These ribs spring from colonnettes engaged to the middle of the tower walls and cross at right angles at the crown of the vault without the presence of a keystone (6). The walls of the vaulted chamber are treated with coupled blind arcades, one on each side of the wall colonnette. Tall windows pierce the walls on the north and south sides, and an external stair turret gives access to the chamber and to the area above the vault. Outwardly the position of the ribbed vault is indicated by low blind arches separated by engaged columns, the motif relieving the severity of the tower wall at this point (fig. 1). The belfry stage, now replaced by a later construction at Saint-Martin, was pierced with round-headed openings for the emission of the sound of the bells. A four-sided stone roof or a low stone spire terminated the design. One detail in this formula, the peculiarly ribbed vault, has been singled out for special emphasis by writers interested in its place in the evolution of Gothic vaulting (7), but the structural, aesthetic, and historical aspects of the formula as a whole have been generally neglected.

The scale and elaboration of the Tour Charlemagne represent the Romanesque climax of the formula and presuppose prototypes. Such are to be recognized in towers at Marmoutier near Tours and at Lavardin somewhat to the north in Vendomois. With these as a starting point, a

-
- (5) See Hans Reinhart and Étienne Fels, "Etude sur les églises-porches carolingiennes et leur survivance dans l'art roman," Bull. mon. 1933, pp. 331-365; 1937, pp. 426-428.
 - (6) Actually only one rib completely crosses the vault from one wall to the opposite. The other consists of two quadrant sections which abut the first at right angles at the crown of the vault. Such a disposition precluded the necessity of a keystone and is obviously an archaic step in the evolution of rib adjustment.
 - (7) See especially Elie Lambert, "Les premières routes nervees francaises et les origines de la croisee d'ogives," Revue archéologique, 1933, pp. 235 ff., and Marcel Aubert, "Les plus anciennes croisées d'ogives, leur rôle dans la construction," Bull. mon. XCIII, 1934, pp. 5-67.

most convincing chronological and stylistic evolution may be established which sets forth the history of the Touraine group in the second and third quarters of the eleventh century.

The Tour des Cloches at Marmoutier is the most important vestige of the Romanesque abbey which was almost totally rebuilt in the High Gothic style. Like so many early church towers, it had a military as well as a religious function. Its most notable feature is a low, vaulted chamber eight meters square whose walls internally are relieved by broad recessed arches without impost mouldings (8). Above is a massive stone vault in shape somewhat approximating the cloister form, but with the angles rounded. The transitions at the corners are most awkwardly managed in a shape that is neither squinch nor pendentive. No ribs help sustain the vault fabric. Its archaic style and the character of the masonry suggest a date for the tower in the first quarter of the eleventh century; further evidence for this will be cited presently.

Equally as archaic, although slightly later in date, is the tower of Saint-Genest at Lavardin about forty kilometers north. Close stylistic analogies with the neighboring Saint-Gildéric at Lavardin, which is definitely dated about 1040 and was occupied by monks from Marmoutier from the time of its foundation, place Saint-Genest as approximately contemporary and constructed by the same atelier which quite certainly came from Marmoutier (9). The church is distinguished by a tower-porch on the axis of the west facade. Over the chamber of the second stage is a domical vault above blind wall arcades (10) analogous on a smaller scale to that at Marmoutier which may with confidence be accepted as the model. The vaguely shaped cloister vault is prepared for by the same crude corner transitions which characterize the larger construction at Marmoutier, and no ribs appear beneath the intrados of the vault. Two windows in the east wall of the chamber open into the nave, as later in the Tour Charlemagne. Neither Marmoutier nor Saint-Genest displays medial buttresses since no concentration of pressures at the center of the walls by means of ribs required them. As soon as such ribs are introduced into the formula, medial buttresses logically appear with resulting enhancement of the design.

The similarity between the vaulted chambers of the towers, their geographical proximity, the close relations between the neighboring church of Saint-Gildéric and Marmoutier, and the likelihood that workmen from Marmoutier executed both churches at Lavardin, make it probable that the tower of the great abbey served as the model for the modest version at Saint-Genest. With the latter dated about 1040, the Tour des Cloches at Marmoutier should be assigned to a period somewhat earlier in the eleventh century.

About 1050 the same workmen were called to Tours to construct the new towers which were to be incorporated into the ends of the transepts of the church of Saint-Martin built by Hervé at the beginning of the

(8) Illustrated in Plat, L'art de bâtir, plate VI c.

(9) Abbé Plat, "Lavardin, Saint-Genest," Congrès archéologique de France, Blois, Paris, 1925, pp. 314 ff.

(10) Illustrated ibid., p. 327. The upper part of the vault is now destroyed.

century. Tower-porches axially arranged to give access to transepts are rare features in Romanesque architecture. Their introduction in this position at Saint-Martin would seem to indicate the prior existence of western facade towers at the time additional ones were decided upon. The latter, therefore, were related to the transepts (11).

As befitted a monument of such scale and importance, a tower was created which was more developed in design and more advanced structurally than those at Marmoutier and Saint-Genest. Half within the transept and half without (fig. 3), the ground story was a groin-vaulted porch. The chamber above was of loftier proportions than those of the earlier towers and was covered with a domical vault approximating the cloister form. The great innovation was the two massive ribs of rectangular section beneath the intrados which sprang from columns engaged to a pilaster in the center of each enclosing wall and crossed at right angles at the crown of the vault without the presence of a keystone. At each side of the wall column was a blind arch analogous to those which lightened the inner wall surfaces of the Tour des Cloches and the tower of Saint-Genest (12). The better shaped vault, its external expression on the walls of the tower, the superior proportions of the chamber, and especially the rib system introduced to strengthen the vault shell, constitute precisely the improvements to be expected in a later and more important expression of the Touraine tower-formula. Even more indicative of progress is an ingenious secondary system of crossed ribs concealed from view above the extrados of the vault and detached from it (13). Unsuspected until revealed by the collapse of the southern half of the tower in 1928, this device is designed expressly to meet the stresses present in the bell tower. So promising were its possibilities that it underwent subsequent extension in towers presently to be mentioned.

Just as the formula was developed markedly in the interior of the Tour Charlemagne, so also was the exterior design elaborated (fig. 1). Supplementing the buttresses at the corners of the tower, medial members were introduced on each face, except on the transept side where the newly constructed barrel vault functioned in its place. These

-
- (11) Cf. the analogous situation later at Chartres where the survival of the twelfth-century facade with its towers and sculptural decoration led to the abnormally rich development of the transept facades in the thirteenth-century campaign of reconstruction. The lost tower of the west facade of Saint-Martin, labelled on Jacquemin's plan of 1779 as "la vieille tour" and drawn with a plan which differs from that of the extant Tour de l'Horloge, may well have dated, at least in its lower portions, from the time of Herve. Presence of petit appareil on the east wall of the Tour de l'Horloge tends to substantiate the belief that the church of Herve extended to this point.
- (12) For the tenth-century background of these decorative arches see Plat, L'art de bâtir, pp. 123-124.
- (13) For a description of this feature, see Bray, "La Tour Charlemagne," Bulletin de la Société archéologique de Touraine, XXIV, 1928-30, p. 148. Whether this supplementary bracing system is contemporary with the eleventh-century parts of the tower, or whether it was introduced when the twelfth-century belfry was constructed is not yet definitely established.

* north

buttresses express logically the thrust of the vault of the second stage as concentrated by the ribs on the center of the tower walls (14) and are to be associated henceforth with the eleventh-century Touraine formula. The walls of the vaulted chamber were pierced on the north and south by two round-headed windows two meters in width (fig. 2). The fortifications of Chateaufort so reduced the defense requirements of the towers of Saint-Martin that generous apertures were possible. Laterally the chamber was connected with the quadrant-vaulted tribunes of the transept which flanked the tower to one half its depth. On the west side an engaged stair turret provided access to the chamber and the area above.

Expressing externally the elevation of the ribbed vault were double ranges of decorative blind arches separated by engaged columns, except on the south side where the height of the transept roof permitted only one range (15). Along with the medial buttress and the ribbed domical vault, decorative arcades at the level of the latter became one of the distinctive features of the Touraine formula and were widely disseminated into other schools (16). This much of the original construction of the Tour Charlemagne remains in part today (fig. 1), but gone is the primitive belfry element, replaced in the twelfth century by a loftier stage when Gothic vaults were substituted for the barrel vaulting of the Romanesque period and greater elevation was required at this point (17).

Of the innovations made in the Tour Charlemagne, the most significant from the point of view of architectural history is the crossed rib system of the vault of the great chamber. Introduced in the middle of the eleventh century expressly to meet a special problem inherent in bell-tower construction, it takes its place in the company of other archaic experiments in organic vaulting as an important step in the evolution of the Gothic ribbed vault (18). Not fully organic, it nevertheless points the way toward that fuller realization of the economy and beauty of framework construction that was eventually to make possible the Gothic cathedral. As a laboratory for such experimentation, the Touraine tower should be given its full credit.

-
- (14) The original buttresses are today largely hidden beneath revetments made necessary when later stages, particularly the topmost of the fourteenth century, were added to the original tower.
 - (15) This and the lower ranges of arcades on the other faces of the tower were later walled up, but the voussoirs can still be discerned (fig. 1). Some of the capitals of the discarded arches were reused subsequently in the third stage.
 - (16) Cf. the analogous arcades on the towers of Saint-Porchaire at Poitiers, La Trinité at Vendôme (fig. 9); and the south tower of the Cathedral of Chartres.
 - (17) The flashing grooves of the roof over the Gothic vaults may be clearly discerned in old photographs of the south face before the collapse of 1928 (fig. 2). A fourth stage was added in the fourteenth century.
 - (18) For a summary of early experiments with rib armatures, see Henri Focillon, *Art d'Occident*, Paris, 1938, pp. 48-54.

The success of the transept towers of Saint-Martin, together with the prestige of the church, engendered adaptations of the formula elsewhere, not only in Touraine itself, but also farther afield. The process involved simplifications and readjustments, even in some cases a revision of elements difficult of execution. The closest reflections in Touraine itself are at Cormery and Loches.

The Tour Saint-Paul of the Abbey of Cormery, situated about 18 kilometers southeast of Tours, is the sole extant part of the work carried out by the abbots Robert I and Robert II and dedicated in 1054 (fig. 4). It was built axially in front of an earlier Carolingian church and utilized as its east wall the facade of the old structure (19). Like the Tour Charlemagne, it has corner and medial buttresses, and originally was treated on the ground stage as a porch entered through two round-headed portals now mutilated or filled up.

The second stage is a square vaulted chamber analogous to that in the Tour Charlemagne. The domical vault has sixteen vaguely defined panels adjusted awkwardly to the square below, and is upheld by two heavy ribs of rectangular section springing from columns engaged to pilasters in the center of the enclosing walls and crossing without keystone in the center of the vault (fig. 5). Except on the east side the walls are treated with deeply recessed arches, all blank except those utilized as windows on the west side and that on the south which connects with the stair turret. In each corner of the chamber is an engaged column with carved capital but without function, clear indication of indecision in the mind of the builder. Whether a secondary rib system modeled on that at Saint-Martin occurs above the vault at Cormery is not apparent, but its absence would not be surprising considering the smaller scale of the tower and the ability of the main vault ribs to care for the stresses.

Externally the vaulted chamber is illuminated on the west by two round-headed windows enframed by a torus moulding which originally sprang from engaged colonnettes (fig. 4). The surmounting wall which encloses the vault is patterned on the western side with masonry facings in geometric designs instead of decorative arcades and is crowned by a horizontal bracketed moulding beneath which are mutilated metope-like reliefs of archaic character. The style of the decoration suggests a re-use of materials from the tenth-century church (20). On the south side is the stair turret and a blind arch corresponding to the western windows; on the north wall is a low range of decorative arches analogous to those on the Tour Charlemagne.

Until 1891 the tower of Cormery was terminated by two belfry stages surmounted by an octagonal stone spire. The more elaborate treatment of the arched openings compared with those of the windows of the second stage suggests a twelfth-century date for the upper elements. The ensemble, however, was effective and recalls the general appearance of the

(19) On the rear wall of the tower the walled-up windows of the Carolingian facade may still be seen.

(20) The reliefs are reminiscent of similar sculptures appearing at the top of the twelfth-century stage of the Tour Charlemagne. The latter are re-used in their present location and were probably a part of the lost eleventh-century belfry. Analogous sculptured metopes appear at Saint-Genest at Lavardin and elsewhere in Touraine.

twelfth-century tower of Cunault in the multiplicity of small arches in the upper stage, in the engaged columns at the corners, and in the meagerness of the octagonal stone spire. Although the tower of Cormery is associated with a church dedicated in 1054, it is quite possible that it postdates the dedication by a few years. In its axial position, its function as a porch, and its adherence to the Touraine formula, it may be accepted as the closest reflection of the Tour Charlemagne.

The last of the completely realized Touraine towers occurs on the west facade of the church of Notre-Dame at Loches (21). Built in the third quarter of the eleventh century and originally associated axially with the facade of a hall-type, wooden-roofed church, perhaps that founded by Geoffroy Grisegonelle, Count of Anjou, in 962, the tower now stands between an early Gothic narthex and the curiously vaulted nave of the church as rebuilt in the twelfth century. The ground story is barrel vaulted on an east-west axis with two transverse ribs of rectangular section springing from engaged columns on the north and south walls (22). Logically expressing the two ribs on the outside of the tower are double intermediate wall buttresses of slight salience, rather than the single medial member that is characteristic of the Touraine group.

The chamber of the second story is covered by the normal domical vault sustained on heavy crossed ribs springing from wall colonnettes on consoles in the middle of the lateral walls (23). The blind arcades which usually relieve the austerity of the walls of the chamber do not occur at Loches which in other respects is more austere than its companions. The exterior is singularly plain, the surfaces being distinguished on the north and south, not by the usual range of decorative blind arcades, but only by extensions of the corner and double intermediate buttresses initiated by the ribs of the barrel vault of the first stage. The surmounting octagonal belfry is twelfth century in date and therefore sheds no light on the primitive type that was originally associated with the formula. The tower of Loches, massive in its proportions, austere in its appearance, somewhat crude in execution, is the least distinguished of the major Touraine towers, but in its former relation to the original church its donjon-like massiveness must have harmonized effectively with its fortified surroundings.

Near Loches is the twelfth-century tower of the ruined abbey of Beaulieu-les-Loches, the base of which to the height of nine meters shows definite indications of being earlier than the stages above. In its dispositions it is reminiscent of the west tower of Notre-Dame at Loches. The plan is square and three sides are treated with shallow quadruple buttresses initiated by the transverse ribs of a barrel-vaulted chamber at the ground level, as at Loches. On the evidence it would appear that at the time the hall-type format of the church was transformed by the introduction of a barrel-vaulted nave buttressed

(21) Called Saint-Ours since the early nineteenth century.

(22) The appearance of a ribbed barrel vault in an otherwise quite normal Touraine tower is indicative of a tendency to utilize this form eventually in preference to the ribbed domical vault that is so characteristic of the formula.

(23) Shortly before 1168 at the time of the introduction of vaults into the nave, the chamber was transformed into a tribune gallery opening into the church.

by high, similarly vaulted aisles, a tower analogous to that at Loches was begun, interrupted, and then resumed in the twelfth century. Thus abortively ended what might have been still another expression of the Touraine tower.

So successful was the formula in solving the basic problems of the bell tower that various aspects of it were adopted in peripheral expressions both in Touraine and more distant regions. The north tower of the church of Saint-Mexme at Chinon offers a typical example (fig. 6). As at Cormery, it is associated with fragments of a tenth-century church in front of whose facade it was built, and with a narthex dating from about 1030 (24). The latter is covered with a barrel vault over seven meters in span sustained on three massive transverse ribs running north and south, much as in the vestibule of Notre-Dame at Loches. Shortly after the middle of the eleventh century, towers flanking the narthex were constructed, of which the north one up to the belfry stage is extant (25).

The north tower is clearly to be associated with the Touraine group in spite of a slight variation internally. Medial buttresses appear on the east, west, and north sides, and a range of shallow decorative arches separated by engaged columns relieves the masonry at the level of the vault of the chamber inside, as at Tours and Cormery. This vault, instead of being the usual domical form with crossed ribs beneath, was covered with a barrel vault running transversely to the axis of the church, a form already encountered in the vestibule of Loches and to be found also in the south tower of the Cathedral of Bayeux. Greater ease of construction and desire to buttress the barrel vaulting of the upper stage of the narthex explain the change in type. It is significant to note that the vaulted chamber of Saint-Mexme was originally a chapel dedicated to Saint-Martin of Tours and that frescoes dealing with scenes from his life formerly adorned the walls, a circumstance that tends to confirm the stylistic evidence of the tower in relating the design to that of the Tour Charlemagne (26). That the north tower of Saint-Mexme is a derivative performance is strongly indicated by the presence of medial buttresses which have meaning when internal vault ribs concentrate pressures in the center of the tower walls, as at Tours, Cormery, and Loches, but which here are blind imitations of a form that has structural significance elsewhere.

While the towers just discussed represent the most complete eleventh-century expression of the potentialities of the formula, there are other towers in Touraine which have features that can be credited to the vitality of the same source, such as the tower of Chateaudun with its medial buttresses, and especially the facade tower of Saint-Julien at Tours, dated about 1080. The latter recalls the Tour Charlemagne so close at hand in its axial placement as a porch-entrance to the nave of the lost Romanesque church. The ground stage is covered with a longitudinal barrel vault sustained on a heavy transverse rib. Presence of

(24) See Eugène Pepin, *Chinon* (Petites monographies des grandes edifices de la France), Paris, n.d., pp. 91-102.

(25) The present belfry and the entire south tower date from the fifteenth century.

(26) In the eighteenth century the chapel was suppressed, the vault removed, and the tower converted into a stairwell with an iron staircase giving access to the room over the narthex.

the latter justifies the logic of the medial buttresses that characterize the tower. The stage above is illuminated by large round-headed windows, one on each side of the central buttress, as in the Tour Charlemagne and the tower of Cormery. Above, a blank wall unrelieved by decorative arches serves as a preparation for a single-stage belfry with triple arched openings on each face.

Most interesting of all is the tower attached to the church of Saint-Pierre at Preuilly-sur-Claise about sixty kilometers south of Tours (27). Although lacking some of the devices associated with the Touraine formula, it occupies a special position in relation to the Tour Charlemagne, for Preuilly, one of the major monuments of Touraine, shows every indication of being a most valuable radial structure in its reflection of certain dispositions known to have characterized the eleventh-century church of Saint-Martin at Tours.

Dating from the late eleventh or early twelfth century, in spite of the date 1009 traditionally assigned to it, the church displays the rare feature of a tower on each end of the transept as at Saint-Martin. Only that on the north arm exists today in a much restored condition. Oblong rather than square in plan, the tower is incorporated into the extremity of the transept much as is the Tour Charlemagne, but with one basic difference. Whereas at Saint-Martin the tower was a later intrusion into a pre-existing construction with clear evidences of makeshift adjustments in the integration of the two parts, the tower of Preuilly is perfectly integrated and displays precisely the sureness of handling to be expected in a monument inspired by a prototype and benefiting from the experience of its model. Although not utilized as a porch because of the relatively small scale of the church, the base of the tower internally reflects clearly the end-galleries of the transept of Saint-Martin in the double arcades separated by a compound pier which give entrance to the groin-vaulted ground stage. Above this level the tower wall is pierced with two bifora arches giving onto a vaulted chamber reminiscent of the analogous compartment on the second story of the Tour Charlemagne. Like the latter, but in a more definite way, it serves the transept as a tribune gallery. Its design reveals the same stage of development out of the prototype motif at Saint-Martin that characterizes the ends of the transepts of the Pilgrimage churches of Saint-Sernin at Toulouse and Santiago de Compostela.

Externally the tower of Preuilly rises two stages above the tribune level. On the north face a medial buttress reflects the disposition within and recalls that highly characteristic feature of the Touraine formula. The present spire is nineteenth century.

The tower of Preuilly may be viewed more as a direct dependent of the Tour Charlemagne in the latter's function as an integrated transept tower than as a reflection of its specific form and detail. In plan and internal organization it is as though the builder, unconcerned with the porch aspect of his model, adapted to his needs only the inner half of the Tour Charlemagne, that portion contained within the last bay of the transept of Herve and potential of development as a terminal feature (cf. fig. 3). Similar was the reaction in the great Pilgrimage churches where the dispositions of Saint-Martin led to the bold return

(27) See Abbé G. Picardat. L'église abbatiale de Preuilly-sur-Claise, Preuilly, 1895.

of the complete aisle and tribune elevation of the nave and transept across the end of each transept arm (28). At Preuilly the tower is clearly a restudy of suggestions embodied in the great prototype with little idea of the detailed imitation that characterizes Cormery. Other features at Preuilly tend to confirm its stylistic dependence upon the church of Saint-Martin.

In ranging farther afield for evidences of the influence of the Touraine formula, caution is necessary in ascribing features superficially suggestive of the Touraine towers to this specific source, but in the case of the highly individualistic vaulted chamber with its unique system of crossed ribs and columnar support, one can hardly be wrong in recognizing its occurrence elsewhere as the reflection of an important element of the formula. So well adapted was it to the contemporary state of bell-tower construction that it was adopted in a number of instances, even in countries outside of France.

There are two towers in Normandy that relate themselves to the Touraine group. In view of the rapidly accumulating evidence that the church of Saint Martin at Tours influenced the early Norman school in such prominent features as double-stage transept chapels, tribunes, and transept end-galleries, it is not surprising to discover in Normandy reflections of the Touraine tower-system.

The north tower of the Cathedral of Bayeux (29), now largely encased in thirteenth-century revetments, has in its ground stage a typical Touraine vaulted compartment with cloister vault sustained on heavy cross ribs of rectangular section which spring from engaged columns in the middle of the walls and cross at the crown without keystone. Three of the walls are relieved by blind arches, one on each side of the central engaged column. From evidence visible above the revetments, it appears that medial as well as corner buttresses characterized the exterior of both towers (30). The date of the construction falls between the burning of the old cathedral in 1046 and shortly after the dedication of the reconstructed edifice in 1077.

The south tower is similar except that the ground stage is covered by a barrel vault on an axis perpendicular to that of the church as in the north tower of Saint-Mexme of Chinon. The vault is strengthened by a central transverse rib which springs from wall columns in the center of the east and west walls. Curiously enough, similar columns are engaged to the middle of the other two walls as though to prepare for a ribbed cloister vault like that in the north tower, but a change in plans, probably in the interests of simpler construction, substituted the barrel form. The columns on the north and south walls were thus left without function. In three of the corners single engaged colonnettes appear much as at Cormery and are likewise unused in the vaulting

(28) There is clear indication in the south transept of Sainte-Foy at Conques that a similar treatment was originally planned for this church.

(29) See Louis Serbat, "Les monuments de Calvados, Bayeux," Congrès arch. Caen, 1908, (Part I) pp. 145 ff.

(30) It should be noted that the vaulted chamber is on the ground level instead of in the second stage as is normal in the group. Groin vaults cover the compartments in the two upper stages in both towers.

system of the chamber. On the evidence of Saint-Mexme and Bayeux, it would seem that in peripheral expressions of the tower-formula the specialized advantages of the ribbed cloister vault tended to lapse in favor of the standard barrel form.

Another reflection of the Touraine type in Normandy is the isolated tower associated with the north side of Saint-Martin at Ver (Calvados) (fig. 7) (31). It is characterized by medial as well as corner buttresses on all sides except the eastern. The ground stage is groin vaulted and is served by two modest portals. The second stage is without a vaulted ceiling and identifies its volume with the hollow interior of the tower. However, two corbeled contractions of the walls mark the level where the ribbed vault normally springs in more developed towers of the Touraine type. Furthermore, at precisely the level to express externally the elevation of such a vault is the familiar range of decorative blind arches separated by engaged colonnettes, disposed, as on the north tower of Saint-Mexme, on each side of the medial buttress (cf. fig. 6). On the eastern side, the sequence of four arches is continuous. No large windows appear below the arcade to illuminate the second stage; instead a door high above the ground gives access to the level as in donjon construction. It is clear that requirements of defense and absence of a vaulted chapel at this level militated against the coupled windows of the Tour Charlemagne.

Since the medial buttresses do not express any concentration of pressures within, and the decorative arcade is not here associated with any corresponding internal vault, it seems certain that the tower is a derivative structure, imitating the dispositions of a prototype where such features would be rationally expressive of structural arrangements. Even though simplified inside, the external design of the tower approximates the eleventh-century state of the Tour Charlemagne in so far as the portions below the belfry are concerned, the only parts that can be justifiably compared. As if in validation of this stylistic relationship, the dedication of the church is to Saint-Martin as was also the chapel in the north tower of Saint-Mexme which likewise shows dependence on the same prototype.

If Normandy was more concerned with the design factors of the Touraine formula than with its structural innovations, more remote areas were intrigued especially by the practical advantages of the rib-strengthened domical vault which met so effectively the demands of bell-tower design. It is this element that occurs sporadically in regions far from the Touraine even when no other aspect of the formula was used. For example, the church at Aubiac in the diocese of Agen displays a perfect replica of the Touraine vaulted compartment in the role of crossing lantern (fig. 8) (32). The square cage requires no elements of transition from the area below. In the center of each wall an engaged column supports the heavy cross ribs beneath the vault. Two blind arches adorn each wall of the lantern and contain within them the windows which illuminate the crossing.

(31) See Lefèvre-Pontalis, "Les clochers du Calvados," Congrès arch. Caen, 1908 (Part II), pp. 654-660, and Ruprich-Robert, L'architecture normande au XI^e siècle en Normandie et en Angleterre, Paris, n.d. Plate XXXIII.

(32) Philippe Lauzun, "Église d'Aubiac," Congrès arch. Agen, Auch, 1901, pp. 35-38.

Beyond the confines of France there occur three reflections which demonstrate the vitality of the Touraine ribbed vault in bell-tower construction. Two are in Spain where the problem is complicated by the strange fascination on the part of the Christians for Moorish ribbed vaults like those in the Mosque at Córdoba and in El Cristo de la Luz at Toledo (33). Christian vaults of direct Moorish inspiration, even though exotic in nature, must be considered a part of the current eleventh-century interest in the potentialities of the ribbed vault that was brought to a brilliant fruition later, but these are not the concern of this study. There are two Spanish vaults which occur in bell towers and would seem to owe their form to the influence of Touraine models. One is in the crossing tower of San Salvador at Sepúlveda (1093) (34), and the other is in the upper stage of the Torre Vieja of the Cathedral of Oviedo (before 1098) (35). In both instances, the ribs are rectangular in section and meet without keystone in the Touraine manner. At Sepúlveda they rest on corbels, but at Oviedo the heavy ribs spring from columns engaged to the center of the walls of the belfry. The arches at each side completely pierce the wall to form the openings of the belfry stage. Externally, medial buttresses express the internal disposition, but only at the top of the stage at the level of the vault. The entire arrangement is derivative and recalls Aubiac; but whereas the latter occurs beneath a bell tower in logical relation to the staging above, at Oviedo the ribbed vault appears in the topmost unit of the tower where the reinforced vault is hardly necessary from a structural point of view. It represents another instance of the imitation of a specialized form designed elsewhere for a more functional position and used in this case perhaps out of interest in the decorative value of ribs as stimulated by Moorish models.

The third possible reflection occurs in Sweden in the ruined eleventh-century church of Saint Peter at Sigtuna (36). A cloister vault in the square crossing tower is distinguished by heavy ribs of rectangular section adjusted at the crown without a keystone. As in Touraine, one rib completely spans the vault, while the other consists of two quadrant sections striking the first at the top from opposite sides. There are two differences, however, from the Touraine type; the ribs spring from the corners of the square vault instead of from the middle of the lateral walls, and they rest on corbels rather than on engaged columns; but the crossing vault serves as the base for the bell tower above, and the function of the strengthened vault in relation to the support of the wooden scaffold of the belfry is identical to that in the Touraine group. In view of the Norman influence recognizable in the crossing tower, it would seem legitimate to conjecture that the influence of the Touraine ribbed-vaulted compartment, found in pure

-
- (33) For the result of this admiration, see the vaults of Torres del Río (Navarre), San Miguel at Almazán (Soria), Mozarabic Chapel at Salamanca, and San Millán at Segovia. For Christian adaptation of another form of Moorish vault, see Carl K. Hersey, The Salmantine Lanterns, Cambridge, 1937, pp. 71-106.
 - (34) Manuel Gómez-Moreno, El arte románico español, Madrid, 1934, pp. 152-155; ill. plate CCII.
 - (35) Ibid., pp. 156-157; ill. plates CCIII, CCIV.
 - (36) Johnny Roosval, "Une voûte à nervures du XI^e siècle à Sigtuna," Medieval Studies in Memory of A. Kingsley Porter (Wilhelm Koehler, ed.), Cambridge, 1939, II, pp. 689-697.

form in the north tower of Bayeux, was disseminated through Normandy to this important early Swedish cathedral. With the church dated sometime between 1050 and 1080, such a conjecture is entirely plausible on the basis of chronology.

The potency of the Touraine tower as a whole or in part in the early Romanesque period has been traced. Subsequently, in the rich era of tower development in the first half of the twelfth century which led on to the Gothic floruation, certain elements of the formula survived. As the military aspect waned and the predilection for height and vertical line intensified, the walls of the tower became thinner and the openings larger, so that the problem of counteracting the reciprocating pressures set up by the bells became more vital than before. In the eleventh century the vault reinforced by heavy ribs beneath the intrados had been adequate, but already the builder of the Tour Charlemagne had experimented with a system of loaded cross ribs posed above the vault and detached from it for sake of flexibility. An extension of this principle of skeleton construction would exploit the full potentialities of the rib system as a support for the belfry staging and as a somewhat flexible device for transmitting pressures to the walls of the tower at points sufficiently low for the thick masonry masses to absorb them. Detachment of the ribbed skeleton from the vault fabric was a recognition of the special purpose of each, the former to function structurally, and the latter to cover the chapel compartment below. Precisely this logical development takes place in two conspicuous examples.

In the tower of La Trinité at Vendôme (fig. 9), begun probably in the 1120's, the study of the structural support of the belfry staging reached its highest expression in a complicated construction difficult to describe, but beautifully logical (37). Clearly influenced by the rib reinforcement under the domical vaults of the Touraine towers and more specifically by the supplementary system above the vault of the Tour Charlemagne, the builder of the Vendôme tower sheltered from pressures the paneled vault of the chapel on the ground story by a system of ribs crossing above the extrados without keystone. By loading and an ingenious use of small segmental arches rising from the haunch of the ribs to the center of the tower walls, each main cross rib is brought up to a uniform level. On the intersection of these low cross walls above the ribs rises a compound pier of four columnar elements which in turn upholds one side of four slightly pointed arches radiating in the same plane as the ribs below to engaged columns in the center of the enclosing walls. These arches are likewise loaded to achieve a level line. Coupled blind wall-arches tie the construction together laterally. By means of the stilted repetition of the lower system, a veritable stone arched staging was achieved which not only gave support to the bells at the proper level, but also provided a semi-flexible, open-skeleton support which transmitted the vibrations and reciprocating movement of the swinging bells to the walls of the tower without any dependence on the vault-shell below. The latter thus became exclusively the covering of the chapel and was without obligations

(37) See Abbé Plat, *L'église de la Trinité de Vendôme* (Petites monographies), Paris, 1934, pp. 48-71. For perspective drawing of the complicated rib system of the tower, see Viollet-le-Duc, *Dictionnaire raisonné de l'architecture française du XI^e au XVI^e siècle*, Paris, 1875, III, p. 356.

to the structural stability of the tower. Such extension and refinement of the structural possibilities of the Touraine formula do much credit to the builder.

In still another way the tower of Vendôme is indebted to the formula. The second stage of the exterior design consists of a range of blind arches corresponding to the upper part of the vault and the surmounting rib system inside (fig. 9). Although more elongated in proportions and with arches slightly pointed, the motif in both function and design is a direct derivation from the Touraine composition. So effective was it in its more prominent scale that it was widely adopted in twelfth-century tower compositions as at Saint-Porchaire at Poitiers and on the south tower of Chartres.

Slightly later than the tower at Vendôme is the Tour Saint-Aubin at Angers, formerly associated with the lost abbey of Saint Aubin and begun by abbot Robert de la Tour Landry inn 1130 (38). It displays the same system of reinforcing ribs disposed above the extrados of the domical vaulted chamber of the second stage, except that only one level of crossed members was deemed necessary (fig. 10). Entirely detached from the surface of the vault, the heavy segmental ribs, similarly loaded to effect a level platform for the bell staging above, spring not singly but in pairs from the middle of each wall to the other, intersecting in the center in such a way as to leave a square aperture above the oculus in the dome below through which the bells could pass. This novel disposition recalls the analogous rib adjustments of the Moors at Cordoba and Toledo, and again raises the question of Moorish influence on the Christian development of the ribbed vault (39).

In the tower built at Beaulieu-lès-Loches about the middle of the twelfth century above an earlier ground stage of what was probably planned to be a Touraine tower, the elaborate rib systems of Vendôme and Angers were not utilized (40). The barrel vaults of the three superposed chambers, two of them reinforced by transverse ribs, were evidently deemed sufficient for tying together the walls of the tower and for elevating the platform of the belfry to the requisite height. Externally, however, the design perpetuates the old formula. Except for the primitive basement stage and the absence of an octagonal drum between the belfry and spire, the management of the arched stages is close to that at Vendôme. Whereas, however, the latter shows a logical relationship between the external design and the internal elements, the tower of Beaulieu-lès-Loches reveals no such correspondence below the belfry stage; rather it resorts to the use of a traditional design-system without the fine feeling for its structural justification that characterizes the more inspired expressions of the formula.

The towers of La Trinité, Saint-Aubin, and Beaulieu-les-Loches serve to epitomize the continuing vitality of the tower-formula of

(Continued on page 42)

- (38) See Pinier, "Tour Saint-Aubin et restes de l'abbaye," Congrès arch. Angers, Saumur, 1910, (Part II), pp. 215-218.
- (39) For Lambert's theory see "Les voûtes nervées hispano-musulmanes du XI^e siècle et leur influence possible sur l'art chrétien," Hespéris, VIII, 1928, pp. 147-175.
- (40) For elevation and section see Jean Hardion and L. Bosseboeuf, L'abbaye de Beaulieu-lès-Loches et quelques monuments de sa dépendance, Tours, 1914, pp. 26-27.

MEDIEVAL CHURCH ARCHITECTURE IN WALACHIA

by Zdenka Munzer

The conquests of Trajan and Roman colonization extending over more than a century and a half left an irrevocable mark upon the soil and population of ancient Dacia. In customs, language, and Christianity, pure Latin forms prevailed even after Aurelian retreated before the Goths. Just as the earlier Getae had fled invading Bastarnes, some Dacians sought refuge in the mountains. There, for more than a thousand years they maintained intact their characteristic Roman culture. Others, however, preferred to till their ancestral valley fields despite the Barbarian yoke. Even they, exposed as they were to various masters, succeeded in preserving a considerable degree of Latinity. Thus, in both mountain and valley the Roman tradition was sustained in many basic cultural elements--in customs, language, and especially in local political organization.

But this was not the case with Dacian art. The art tradition of Rumania is more primitive and ancient than that of Rome. It is much closer to the art tradition of Byzantium and the Slavo-Byzantine world.

In considering the primitive aspects of Rumanian art, the Thracian element must be taken into account. It is found in the earliest artistic manifestations of all the peoples of southeastern Europe. Archaeological investigations throughout Rumania--at Gumelnitza in Walachia, at Cucuteni and Fedilezeni in Moldavia, at Atmagean and Tatareasca in the Dobruja, or at Salcutza, near Craiova in Oltenia--have brought to light a treasure of artifacts, modeled and painted pottery, weapons of copper and bronze, cult and other objects, which are related to Thracian civilization.

These artifacts demonstrate that the Carpathian-Danubian civilization enjoyed a remarkable and uninterrupted artistic activity which spread, near the second Bronze Age, to eastern Germany. In Rumania, this artistic tradition survived both Romans and Barbarians. Even today the geometric designs of peasant textiles and wood carvings recall Thracian decorative elements found in the ancient folk art of the Balkan and Aegean areas.

That Rumanian art has nothing in common with that of Rome is at first sight extraordinary. Relations with Rome were direct and active. Roman builders constructed numerous and important works, and Dacia evolved a considerable provincial art. But with the settlement of Goths as confederates of the Empire, and with numerous Romano-Byzantine invasions by Constantine the Great, Justinian, and Maurice, Roman buildings

Dr. Munzer is an assistant at the Avery Library Columbia University.

She is a native of Prague, completed her doctoral studies in Germany, and has traveled and studied extensively in eastern Europe.

from the seventh century onward were neglected by indifferent rulers. By the eleventh century only a few cities in the Dobruja still preserved even their ancient fortifications. After the invasions of the fourteenth century, the period that saw the formation of the Rumanian principalities and the appearance of a Romanesque masonry architecture, ruins alone remained to recall Rome. Romano-Byzantine monuments became quarries for new builders.

The culture of the new Rumanian principalities was strongly influenced by Byzantium, directly, or indirectly through Slavic neighbors. Hungary to the north furnished the Rumanian voevodes (princes) with their first models of state and court. Bulgars and Serbs to the west made important contributions, for example, the Serbian churches in the valley of Moravia provided inspiration for many Walachian buildings. Along with these foreign elements, however, the formation of monumental architecture in Walachia and Moldavia was conditioned to a large extent by traditional local methods of construction and local building materials--stone in great quantity, brick which the artisans easily and skillfully made, and timber. Climate too encouraged sharply pointed roofs with prominent eaves to carry snow and rain beyond the gaily decorated walls below.

Two main currents stand out. First, and perhaps earlier, was that from the west bearing Romanesque and Gothic influences. It entered Moldavia from Galicia and Poland and assumed considerable importance. In Walachia, it derived from Transylvania and was less energetic. This occidental current soon declined and was replaced by a second, radiating from Byzantium. In the fifteenth century the orient won almost exclusive dominion.

The foundations of two churches are today the only remains that illustrate the occidental current in Walachia. The first, at Câmpulung, has nave and side aisles separated by pillars, to which the round sanctuary at the east end of the nave joins rather awkwardly. A small pronaos is separated from the nave by a cross wall with a door. This division is typical of orthodox plans. A spiral stair connected pronaos and bell tower. These old foundations were rediscovered in 1925 beneath the present eighteenth-century church, in whose walls were found reused stone blocks still preserving Romanesque profiles.

Ruins of a second occidental church have come to light at Turnu-Severin, within the Roman castrum, Drobetae. The foundations of the rectangular nave are of large stones of regular dimensions and seem to be of Roman origin. The small stones of the rounded choir and its buttresses seem to be Gothic.

Secular architecture of occidental character is represented by several remains. One such is the fortress of Argeş, the Tepeş-Vâda, believed to have been built by the knights of the Teutonic Order. It is composed of several towers joined by curtain walls forming chemins de ronde. One tower, square in plan and entirely of stone, is apparently older than the other towers which are round and of stone and brick. Another example is a rectangular tower at Turnu-Severin built of massive stone and probably part of a fortress guarding a bridge. The ruins of the palace of the Prince at Curtea de Argeş also appear to reflect occidental influence both in arrangement and in Gothic profiles which probably framed its doors and windows.

The medieval architecture of Walachia has disclosed few traces of oriental influence. Foundations of two small churches of oriental plan have been discovered at Turnu-Severin. They have almost square naves, small pronaoses, and semicircular sanctuaries. One of them seems to have been very carefully built with courses of fairly regular small stones alternating with courses of brick. Vertical bricks surrounded the small stones. The nave probably had a barrel vault which, according to indications in the foundations, was reinforced by stone ribs. A lateral door opened directly into the south side of the nave.

Byzantine influence, however, was much more important, and it entered Walachia directly from Byzantium and indirectly from Serbia, Armenia, and Mount Athos.

Direct Byzantine Influence

Direct Byzantine influence is evident in fourteenth-century Walachia at Curtea de Argeș in the churches of St. Nicora and the Domnească. To these should be added the church at Nicopolis on the right bank of the Danube in Bulgaria. These examples are characterized by square or rectangular naves, small pronaoses, and sanctuaries, semicircular on the interior and polygonal outside, with or without small lateral chapels.

The church of St. Nicora, built about 1350, is of brick, a material whose use in Walachia may date back to the thirteenth century. The plan is very small, only 26 feet wide and 52 feet long. The single nave seems to have had a barrel vault reinforced by double arches, of which traces still remain, but the vault and part of the walls have fallen. Only part of the apse vault is in place. Since the masonry has layers of brick alternating with layers of grey stone bedded in cement and surrounded with brick, the structure must be related to Greek churches, which are to be distinguished from those of Constantinople by this "parement oloisonné." Additional confirmation of this relationship appears in the three polygonal apses of the sanctuary, and flanking proskomidia and diakonikon, and in the Lombard-like blind arcading which decorates the upper part of the apses below the cornice. The tower, placed over the pronaos, displays traces of three stages of superimposed windows. A single small window opens toward the east. On the south side, the remains of a door open directly to the nave, as at Turnu-Severin.

Nicopolis and the Domnească de Argeș form the second group. Each has a Greek cross plan with a central tower above the intersection of the barrel-vaulted arms. Nicopolis is a small building, being only 16 by 26 feet inside. The pronaos is partly ruined, but until 1910 remains of two turrets still existed above it. The walls are of stone alternated with brick. The tower is octagonal on the exterior and it has eight long windows covered by arches of stone and brick, similar to those of Mesembria, Trnovo, and Byzantine Serbia, whereas those at Curtea de Argeș are entirely of brick. These arches rise to form gable-like projections on each face of the tower, and the cornice follows their curved line. There is an element of originality in the way the tower is supported on four arches which in turn rest on consoles, an arrangement to be described later in certain churches of the Serbian school. Semicircular windows pierce the end walls of the four arms.

The Domnească church is a more developed example of Byzantine churches of the Comnenian period. The Greek-cross plan has a central tower but-

tressed by the four barrel vaulted arms and supported by four free-standing columns. Externally, the barrel-vaulted arms end in round pediments. The lower roofs of the four corner bays are continued over the pronaos and the side-apses at the rear. Although cylindrical within, the tower is dodecagonal without. The four faces on the main axes are pierced by long windows, while the intervening sides have internal niches. Semicircular pediments on the exterior are framed by projecting arches springing from stone consoles. The facades display alternate courses of stone and brick like the buildings already mentioned.

The clearly differentiated exterior of the Domneasă church produces a striking and monumental plasticity of mass. The colorful decorative quality of the masonry with its contrasting stone, brick, and wide mortar joints, and the play of shadow and light over arcades and cornices make us forget the omission of carved ornament and sculpture. The effective composition, proportions, and handling of materials once again recall the influence of the monuments of Byzantium. Confirmation of this influence seems especially indicated by the resemblance of certain features to those in the Bodgan-Seraf, a small chapel probably belonging to a Comnenian palace in Constantinople.

These fourteenth-century churches form a well defined group. By virtue of their architectural character, their methods of construction, and their lack of side apses, features so distinct from later monuments, they betray their Byzantine origin.

Serbian Influence

Toward the end of the fourteenth century, the arrival in Walachia of the monk, Nicodemus, who was related to the ruling house of Serbia, incited the building of a considerable number of churches, several of which are preserved in fairly good conditions.

A distinguishing feature of these churches is the addition of apses at the ends of the transepts, which with the main apse completes a "triapsidal" plan. This triapsidal plan appeared sporadically in all Byzantine countries, but it became almost universal in Mount Athos, Serbia, and Rumania. Gheorghe Balg writes: "In respect to the triapsidal plan, which is one of the most characteristic features of Rumanian churches, we think that it came from Mount Athos, but by way of Serbia."

There are, however, two versions of the triapsidal plan. That used at Mount Athos is almost always found in conjunction with a central cupola supported on four free-standing columns. In the second form, the columns are omitted and the cupola rests on arches which in turn spring from the walls themselves. This is the type almost always found in Walachia and always in Moldavia. Both types are represented about equally in Serbia. The second type is more frequently found among Moravian churches. Thus, transmission of the triapsidal plan to Rumania by way of Serbia seems strongly indicated. This argument is supported by the absence of any document linking Mount Athos directly with Rumania, and the well known positive fact that Serbian monks introduced into Rumania the monastic rule with which church construction was so closely related.

Churches of this group are characterized by Balg as having a "simple" or "complex" plan. In the "simple" plan, the main apse is placed directly against the eastern arch of the nave. G. Millet has shown that this type of plan was used in ancient times in Asia and

other regions on the periphery of the Byzantine world, but, although very common in Greece, it was almost unknown at Constantinople and Mount Athos. It also occurs in Macedonia and Serbia, rarely in Bulgaria, but above all it appears in the Rumanian churches of the period under consideration--at Tirnovo, Mesembria, Stanimaka, Băckovo, etc.

In contrast to the "simple" plan, the "complex" plan displays additional vaulted elements separating apse and eastern nave arch. This solution was used at Constantinople, Mount Athos, and Salonika. It is also found in a number of Serbian churches of the period prior to the Moravian school, likewise in Bulgaria, and especially in Rumania.

Still another characteristic found in Serbian churches lacking nave columns is the use of blind arches on the north and south walls flanking the side apses. The origin of this arrangement can easily be guessed. If the arches of columned naves are pushed out until they join the exterior walls, they become these blind arcades. It is true that this feature is also found in Bulgaria, in the Church of the Holy Archangels at Mesembria, dating probably from the fourteenth century, in the upper part of the Chapel of the Holy Archangels at Băckovo built before the seventeenth century, and in the upper part of the twelfth century church at Stanimaka.

The question is whether Serbian or Bulgarian influence contributed these blind arcades to Rumanian churches. The fact that Bulgarian monuments differ in plan and character, lack lateral apses, are earlier in date, and have no apparent relation with Rumanian examples seems to argue against Bulgarian influence. Furthermore, the Rumanian church at Cozia, which has blind arcades, possesses other details linking it with Serbia. This relationship is all the more suggested by the proximity of Serbia and Rumania, and by the political and family ties that united them, as evidenced by Nicodemus, the monk.

The oldest church of this group, that of the monastery at Vodita, founded between 1364 and 1373, is almost wholly ruined. Only two sections of wall still stand. Recent excavations, however, have revealed that it possessed a triapsidal nave and a rectangular pronaos. The masonry was carefully executed of regularly-cut stone courses, probably alternating with bands of brick.

Further north, at Tismana, the second oldest church, built about 1373-1384, is almost transformed by numerous alterations, especially an eighteenth century renovation of the exterior. Careful examination, nevertheless, discloses certain features influenced by the primitive Serbian plan. It has an almost square pronaos with a low cupola and a triapsidal nave with a higher cupola. The sanctuary is highly developed with two lateral apses that seem to have undergone interior modification and that are flanked by four niches lower in proportion than those in Serbian examples or in the church at Cozia (14 feet and 18 feet). The exterior of the base of the central cupola employs arches in the Serbian manner, a line further confirmed by the great arches projecting above the three apses on the north, east, and south sides of the nave. Outside, these arches project above the roof, out below the actual lines of the pediments. The main apse is placed directly against the great eastern arch. The cupola over the pronaos has a square base surmounted by an octagonal stage, similar to that at Kalenie. Finally, the enframing of the portal, rebuilt in 1541 but perhaps a duplication of the original design, is decorated with inter-

secting semicircles and fleurs-de-lis, like those found in Serbia, particularly at Ljubostinja.

A third example, the monastic church at Cozia, was built in 1393 in the reign of Prince Mircea. The plan, measuring 29 by 82 feet, is triapsidal and thus similar to the churches mentioned above. A tower surmounts the nave, and originally another capped the barrel-vaulted pronaos which itself resembles those of other older Serbian churches. Except for alterations to the nave tower, the suppression of the pronaos tower, some other minor changes, and the addition of an eighteenth-century exonarthex, the church is like those at Krusevac, Rudenica, and Kalenić, and therefore Moravian in type rather than Serbian. It was probably constructed by a Serbian architect, one of those who were working at that period on the churches of Knaz Lazare and those that followed.

The remarkable exterior shows the beautiful decorative quality of the Serbian school. The facades, facings, and decorations--the small corner columns, the decorated arcades, and the rose windows--are Moravian in character with the same motifs found at Krusevac, Ravenica, Ljubostinja, and Rudenica. The archivolts are of finely carved stone with decorative bands of small quatrefoils in terra cotta, like those seen in Serbia. The stone window frames are richly sculptured with a variety of motifs showing Armenian and Georgian influence. The sills of the nave windows have been lowered, and the windows and entrance door of the pronaos are eighteenth century.

The church at Cotmeana was built in 1389 by Prince Mircea, the same ruler under whom Cozia was constructed. Although employing a triapsidal plan, it differs from the previously mentioned churches in having a single nave of three bays. The square central bay supports a tower which is buttressed by the arches of the unequal bays to the east and west. On the interior these arches form large side niches. The three apses are of triangular shape and have cornices at a lower level than the main body of the church. There is a rectangular pronaos. The result is a monumental plasticity and extension quite different from the effect of the centralized Byzantine type of church. It is a type found in the simpler churches in both Serbia and Bulgaria, but, considering the close relations existing between Walachia and Serbia, we are inclined to ascribe its design to Serbian influence. The question is of little importance, however, for it was rarely used in Rumania, being repeated to a certain extent only in the chapel at Bistrita.

The materials and construction methods found at Cotmeana reflect Byzantine practices, but there are some differences. There is the same use of alternating courses of stone and brick, but the chief difference is that the stone blocks are of considerable size, skillfully cut, and richly carved. The use of small discs of green and brown glazed terra cotta for decoration can also be found in the fourteenth century throughout the entire Balkan peninsula.

Armenian and Georgian influences in Walachia

Walachian stone cutting technique and carved ornament reveal an Armenian influence which, like the influence of Mount Athos, reached Rumania indirectly by way of Serbia. The monastic church at Deal and the cathedral church at Curtea de Argeş clearly reflect this influence.

The monastic church at Deal is a square building consisting of a pronaos, nave, and a sanctuary without lateral apses. It is constructed of dressed stone without any admixture of brick. The exterior is ornamented by superimposed blind arcades, separated by a simple band with carved reliefs. Here and there carved disks are inserted reminiscent of fifteenth-century Serbian examples. Skillfully carved borders frame the rounded pediment, the square bases, windows, and eaves of central tower and the two turrets over the pronaos. These towers still retain their beautiful lead roofs. Above the entrance door, a semicircular tympanum of veined marble bears the image of the patron saint, the whole framed by a square moulding. Flanking the tympanum are inscribed plaques with the date of construction, 1500.

The cathedral at Arges, built in 1517, was not intended to accommodate a large congregation of urban worshippers, but rather to shelter the tombs of the reigning dynasty with the bishop serving as the guardian. The nave is triapsidal and is preceded by a rectangular pronaos of such extraordinary dimensions that it becomes the most important part of the church. Inside the pronaos, twelve powerful columns with large capitals are ranged in a square so placed as to leave aisles to the north, west, and south. Over the front corners of the aisles two towers are placed as in Serbian churches of the preceding period. Over the central square of the pronaos an enormous tower rises. The whole pronaos recalls certain examples at Mount Athos.

The remainder of the church--the nave with its pentagonal apses--seems to be reduced to an appendage of the sepulchral pronaos. Even the projecting corners flanking the main apse are hardly distinguishable. Although the plan of the nave has some features in common with Serbian churches, the tower of the nave is octagonal within and is supported on squinches. Such interior octagons are rare in Rumania, but here, in conjunction with other elements, it suggests Armenian or Georgian influence.

The exterior of the church is entirely sheathed in cut stone. The facades are divided into two registers, recalling the scheme used at Deal, except that here the lower register is provided with rectangular panels, while the upper has segmentally arched arcading. The two registers are separated by a boldly projecting torus moulding carved as a twisted rope. Tall narrow windows are inserted in the lower panels, while above in the arcading appear round and square carved panels, some of which are pierced to light the interior vaults. Certain ornaments are gilded on a blue and green background. The base is well developed and strongly profiled. The interior has been entirely renovated.

Although both Deal and Arges have exteriors of cut stone, the interior masonry and vaults are of brick, as are Byzantine monuments for the most part. The monumental plasticity of Deal and Arges differs from preceding churches chiefly because of new elements in the plan and because of new materials and decoration. At Deal, for example, the two turrets of the pronaos flank the Pantocrator, whereas in Serbian churches the secondary turrets are placed at the corners. At Arges, the development of the pronaos results in a group of three towers, one at the center and two on the western corners. The small set-back attic at Deal occurs in Serbia. The attic at Arges continues the plane of the lower wall.

The exteriors of these churches do not, of course, resemble Armenian monuments. Armenian influence is found rather in the technique of carving and in the decorative system of the facades. It is not easy to make clear distinctions between what is specifically Armenian or specifically Georgian in this decorative work of Rumania. Tocillescu, in discussing Argeş, has emphasized its relationship to the monuments of the Caucasus. Hagdeu has ventured the opinion that the church may have been built in the primitive period by thirteenth-century Armenian emigrants from the region of Van and only restored by Prince Neagoe at the beginning of the sixteenth century. Choisy has even said that "The churches of Curtea de Argeş, Targoviste, and Dragomirna do not show one ornament that does not belong to Armenia; from the point of view of decorative architecture the valley of the lower Danube seems to be an Armenian colony." Strzygowski too has pointed out certain relationships between these two areas. Balg also seems convinced, citing moreover that "The Armenian and Georgian influence on the Serbian churches in Moravia has actually been admitted by almost everybody, in respect to the varied decoration of their facades, and above all in respect to the small attached columns and the arcades supported by them."

One of the most characteristic features of Walachian churches is the use of blind arcades to decorate facades. The practice continued from the beginning of the sixteenth century to the beginning of the nineteenth. Many changes were rung on the arcade theme. They are often superimposed, as at Deal. Often the lower arcade is replaced by a series of rectangular panels, as at Argeş, Curtea Domneasca, Targoviste, Vacaresti, and Bucharest. Occasionally rectangular panels supplant both arcades, as on the church of the Holy Apostles at Horez. Some arcades intersect, as at Mogosala and Brancovenu. Elsewhere arcades are couples, as at Brancovenu, Stelea, Bucharest, Filipesti, Padura, and Gelati. In a few instances the towers also are arcaded, as at Papusa, but usually Walachian towers retain the Byzantine form, a slender octagon, decorated with bands of carved flowers reminiscent of Arabian motifs.

These applied arcades with small slender columns are also a characteristic feature of Armenian and Georgian churches. As a rule they run through the entire height of the facades, but the use of superimposed arcades also exists in Armenia forming a counterpart of Walachian examples. Generally, in Armenia and Georgia, the small columns are separated from the arches by little capitals. This arrangement also prevailed in Serbia. In Rumania, however, except at Cozia, these capitals are absent and the column shaft splits into two tori mouldings to form the archivolts of the adjoining arches. This same solution occurs, though less often, in Armenia and Georgia, as in Saint Gregory at Ani. At Deal, Argeş, and many other churches, the arcades of the choir walls continue around the lateral apses, as in the Georgian churches at Gelati and Mtzchet, while Serbian monuments are more like Armenian examples.

The bays of the upper and lower arcades are not always of equal width, and consequently the panels of the two registers do not correspond. At Deal and Argeş, the arches are composed of stones set over the joints, and in Armenia and Georgia also the arcade mouldings are cut in relief on blocks that have horizontal and vertical joints. This detail thus stresses the relation of these churches with Armenia, and confirms the fact that there can be no connection between the ar-

acades of Walachia and those of western Romanesque churches. The use of continuous tori to form Walachian arches clearly indicates that a different principle is involved than in the western system of arches springing from applied columns with capitals.

The bases of Walachian churches are well developed and moulded. At Arges, the amplitude of the mouldings lends a powerful solidity to the general effect. It is elaborated with a rich balustrade ornamented with beautifully carved floral designs. Such an element is also found in Armenia and Georgia, as at the Cathedral of Saint Gregory at Ani, at Etchmiadzin, and at Caben.

The twisted moulding used for the first time in Rumania at Arges was frequently reproduced, as in the metropolitan church at Bucharest. Sometimes this rope-like moulding is not given a continuous twist, but is twisted only at intervals. Twisted rope mouldings were frequently employed in various countries to decorate cornices and enframe doors and windows. At Arges, however, this element is arranged in a different spirit, encircling the building at the spring line of the vaults. This same spirit appears in Armenia and in adjoining countries that felt its influence, i.e., Georgia, Kurdistan, and the areas of Seljuk and Turkish art. In the Homoros Convent at Wagharshapat in Armenia, twisted bands appear as a double cord surrounding the tower at the spring of the vault. Other examples occur at Ani at the base of the tower of the Church of the Redeemer, in Georgia in the arcades of the tower of the church at Bethania, at Mtzohet, and at Nikortzmina. At Erzeroun on two tombs and on the fourteenth-century Tchiffe Minaret, the twisted band is raised to become a cornice.

Another link with Armenia and Georgia is found at Deal and Arges in the lacy ornament covering the facade panels, the bases of the drums, and the frames of the tower windows. This ornament comprises an amazing mixture of Armenian, Caucasian, Persian, Arabian, and Ottoman motifs. Similar decorative motifs connect Arges with Nikortzmina, and still others--such as stalactites and the indented voussairs of archivolts, both from a common Islamic source--are found in the Caucasus and at Arges. Certain sources claim that Prince Neagoe, founder of the church at Arges, had spent part of his youth in Turkey, and had even been employed to supervise the construction of a Turkish mosque. Greek sources report Neagoe brought his architect, Manolli of Nysia (the ancient Trolles in Asia Minor), from Turkey.

This analysis of the churches at Deal and Arges indicates the complex problems surrounding their origins. These two beautiful monuments of Rumania reflect the radiation of Byzantine civilization even after its fall. At Deal, Serbian influence seems evident at many points, in the arrangement of plan, and, despite secondary differences, in the pronaos itself. Arges, on the other hand, is difficult to relate to any previous monument. We do not know who "Master Manolli" was, nor are we sure whence he came, but it is certain that he had an eclectic taste, for this is reflected in the architecture and sumptuous decoration of Arges and of Deal, for the latter is also probably his work. It is natural that their beauty and richness should fire the imaginations of seventeenth- and eighteenth-century architects, because these monuments represent a culminating point in Rumanian art.

The decoration of Arges has had a lasting influence in Walachia, not in those buildings immediately following it, but from the middle

of the seventeenth century when ornamental arcades and panels reappeared and became almost a general rule, Likewise the twisted cornice revived. At the end of the century many details derived from Ottoman art also returned to use, among them traceried rose windows and large rectangular windows with wide decorated frames. The decorative style changed to conform to the taste of the new period, but the decorative principle remained the same.

Direct influences from Mount Athos

The churches of Mount Athos have as characteristic features a central tower supported on four free-standing piers, and also the triapsidal plan. The first feature is found in the Church of the Domnească at Argeş. To these familiar formulae, a new feature, an open porch, was now added for the first time.

For the construction of the monastic church at Snagov and the old cathedral at Targoviste, Prince Neagoe Bassarab summoned other craftsmen who, though as skillful as he who had built at Argeş, composed their plans and facades in a different manner.

The monastic church at Snagov, built in 1517 on the site of another church dating from the time of Vlad Tepes, is relatively large in size, being 20 feet wide and 52 feet long inside. The plan is triapsidal. The nave is terminated by two small apses while the sanctuary has two absidioles. The central tower over the nave is carried on the four barrel vaults over the arms and in turn on four detached piers. The pronaos originally was intended to be left an open porch with a row of columns, but it was later enclosed. Although this porch differs in form from those of Mount Athos, the plan and elevation of Snagov seem at least in part to have been inspired by Athonian models.

In 1518, Neagoe built the finest church that Walachia had seen up to that time, the old Metropolitan Church at Targoviste, unfortunately demolished at the end of the nineteenth century. The plan, 47 by 131 feet outside, combined a Constantinopolitan inscribed Greek cross with the new arrangement of Snagov. The eastern section, consisting of nave, sanctuary, and pronaos, reflected at larger scale the forms of Domnească at Argeş. The tower of the Pantocrator seems to have had a polygonal plan of twelve or sixteen faces. This eastern section was soon augmented on the west by an open porch, square in plan and equal to the nave in area. This porch had a central tower over four free-standing columnar piers and the exterior walls rested on columnar arcades. Later it was enclosed. All in all the church was a monument of exceptional importance in Rumanian architecture, in form as well as in scale and grandeur.

The two sections displayed the same construction and the same exterior forms, although the eastern one was higher and more massive. Both had the same type of design for their eight large and small towers. Round pediments were found in both. Short blind arcades formed a frieze under the cornices. This type of arcading does not appear in other Walachian monuments, but there were similar examples in Serbia and Lombardy.

These two churches introduced the open porch which became such a popular motif in succeeding centuries. By the seventeenth and eight-

eenth centuries, the porch with arcades and stone columns was an integral part of most Walachian churches. Accompanying the resemblances between Snagov and Targoviste, there were differences that cannot be overlooked. The triapsidal plan of Snagov stems from Athos, while the plan of Targoviste comes from Comnenian Byzantium. The triapsidal plan continued to be developed, but the Greek cross plan declined in favor and reappeared only in the sixteenth-century Church of the Princes at Targoviste and in the seventeenth-century church of Saint Demetrius at Craiova.

The Rise of a Local School

After the death of Prince Neagoe Bassarab in 1521, Walachian architects threw off all foreign influences and sought inspiration directly from earlier Rumanian buildings. From then on monuments partook more and more of a purely local conception. All buildings, however, did not conform at first to this trend. Thus the type derived from Mount Athos remained isolated, but the new builders were increasingly drawn to the type represented by Cozia. This church had already been copied at the beginning of the fifteenth century in the chapel at Bradet, and it had also inspired the rich exteriors of the churches at Deal and Arges. The Church of the Prince at Arges with its Constantinoplian plan inspired in its turn the cathedral built by Neagoe Bassarab at Targoviste. In 1532 its plan served as the model for the little church at Hartiesti. At the end of the sixteenth century it was copied again in the Church of the Princes at Targoviste, and finally, for the last time, in the Church of St. Demetrius at Craiova.

Of all those buildings built in Rumania before the beginning of the sixteenth century, those that were selected by the new generation of architects to serve as models for new structures were just those whose plans and decoration were the result of a process of transformation, modification, and romanticizing elements alien to Rumanian art in order to make them more suited to the nature and preferences of the Rumanian people.

On their exteriors these new churches display a more extensive and a more interesting variety than had been customary. Some were built wholly in unplastered brick, with plain facades broken only by a few niches placed directly below the cornice, as in the church at Stanesti, erected in 1537. Others were decorated with semicircular arcades rising through the entire height of the facade, as at Cobia, built in 1572. Here also enameled brick in three shades are found.

The monastic church at Valea, built in 1537, shows a new and interesting arrangement, especially in the play of color. On the facade, exposed brick divide the stone courses into alternating layers. Pairs of vertical bricks, recessed from the face of the wall, separate the individual blocks of stone into rectangular panels.

It was not, however, until the second half of the sixteenth century that the most characteristic exterior treatment of Rumanian architecture achieved its ultimate form. In the evolution of this treatment the conscious effort to create new effects is easily seen. In these facades the alternating bands of stone and brick are retained, but the wall is divided horizontally into two registers by a deep torus of stone framed by two rows of brick. The two registers thus formed re-

ceive separate decorative treatment either by a series of flat, recessed niches, as at Bucovatz, Caluiul, and Tatana, or by blind arcading framed by brick tori, as at Marcuța and Mihai-Voda.

The church of the monastery at Bucovatz, built in 1572, employs the triapsidal plan, the silhouette of which is slightly heavy. The facades are divided into two registers by a torus under which a row of bricks are set in a saw-toothed pattern. The two registers are decorated with semicircular recessed niches separated by narrow piers. The arches are formed with a double row of bricks set flatwise in the Byzantine manner.

In plan, the monastic church at Tutana, built in 1589, recalls the church at Deal. In decoration, however, it follows Bucovatz. Only the upper niches differ. Instead of the straight piers of rectangular section, here the arches rest on two small coupled columns. This solution may have been borrowed from the church at Marcuța, near Bucarest.

This account of sixteenth-century Walachian buildings is necessarily incomplete, for a large number of them have disappeared, and others have been altered or enlarged. It is often difficult to distinguish original portions from later modifications because in most cases both old and new have been covered by stucco on the exterior, and inside by plaster and paintings. Further investigations will probably retrieve other churches and fragments dating from this period. The monuments of this final group have disclosed, except for rare exceptions, a clearly defined character and a remarkable unity in the arrangement of their plans, in the design of exterior forms, and in their decorative system. Here for the first time in the history of Walachian art we find a style that belongs to Rumania alone. Our analysis has shown that this architecture is the more remarkable because of the close adjustment of its forms to the materials used. In quality, in structural strength, and in the varied profiles, Walachian brickwork achieved a degree of perfection which was well exploited in the development of a picturesque and charming architectural style.

* - * - * - * - *

Bibliography

- Bals, Gheorghe: Bisericiile lui Ștefan cel Mare (in Comisiunea monumentelor istorice, 1929)
—: Influences arméniennes et géorgiennes sur l'architecture roumaine (Communication faite au III^e Congrès des études byzantines, Athens, 1931).
Ghika-Budești, S.N.N.: Evoluția arhitecturii în Valachia (in Comisiunea monumentelor istorice, 1927).
Ionescu, Grigore: Istoria arhitecturii românești, din cele mai vechi timpuri până la 1900. București, 1937.
Iorga, Nicolae and G. Bals: Histoire de l'art roumain ancien, Paris, 1922.

* * * * *

THE PIER IN GOTHIC ARCHITECTURE
ESPECIALLY IN THE ILE DE FRANCE

by Clarence Ward

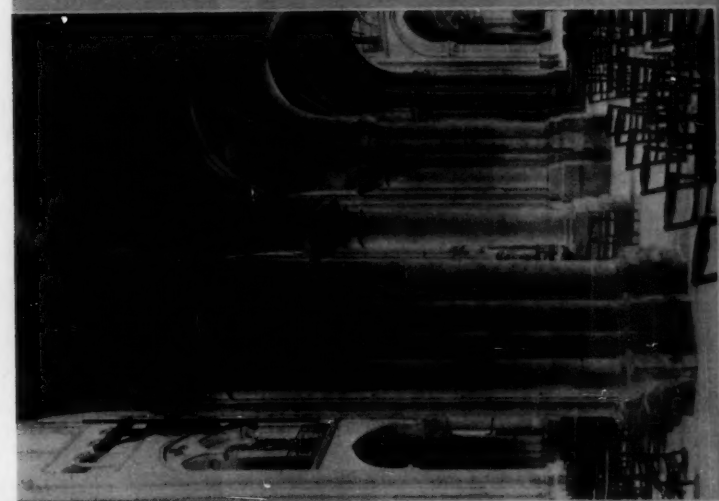
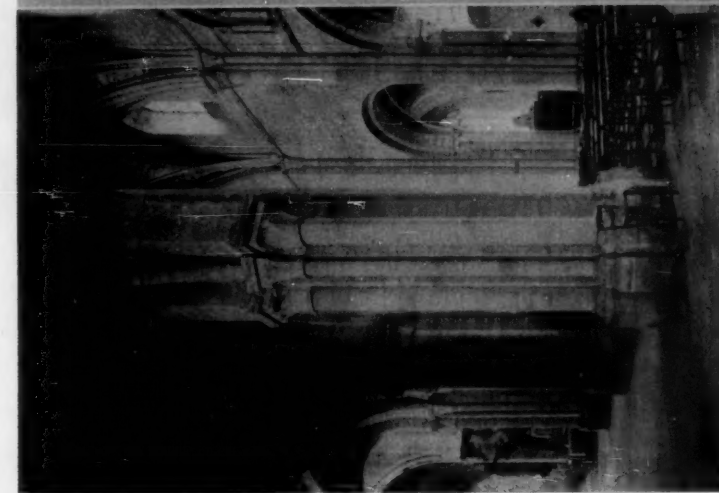
The student of gothic architecture will find that the pier is perhaps the most reliable index to the date and often to the provenance of a building. This is especially true in the Ile de France and, since this was the cradle of most of the distinctively characteristic structural and decorative features of gothic, a study of the development of the pier in this region may prove of interest.

A number of factors contribute to this importance of the pier in determining the dates and sequence of gothic churches. It was generally the first portion of the building to be constructed. It was usually planned with a view to the superstructure which it must carry and it was rarely altered from its original form. Outer walls, buttresses, windows, towers and many other portions of a church were frequently rebuilt and often greatly changed subsequent to their original construction, but this was rarely the case with the pier, if only because of the great difficulty of supporting the walls above it while such changes were made. It is thus quite safe to say that, if the date of the pier is known, this is most likely to be the date at which the church itself was commenced. More than this, the forms of the pier, or those of its constituent parts such as the shaft, base or capital, tend to change at rather definite dates and in a most logical fashion from the earliest to the latest gothic churches. The pier is thus in many cases the governing factor in establishing a sequence of gothic periods. Up to the present, I do not know of any definitely fixed chronological table for the gothic architecture of the Ile de France, but after many years of study I am prepared to suggest the following periods, nomenclature, and dates(1):

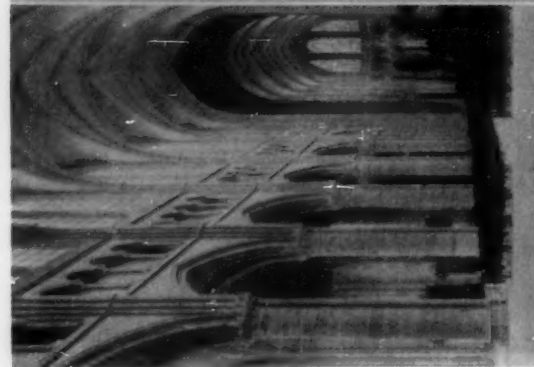
Transitional c. 1125 - c. 1140
Early Gothic I. c. 1140-1160
Early Gothic II. c. 1160-c. 1190
Early Gothic III. c. 1190-c. 1210

-
- (1) This chronology will in many cases fit churches, periods, nomenclature, and dates outside of this immediate region, especially those of the late thirteenth and succeeding centuries.
-

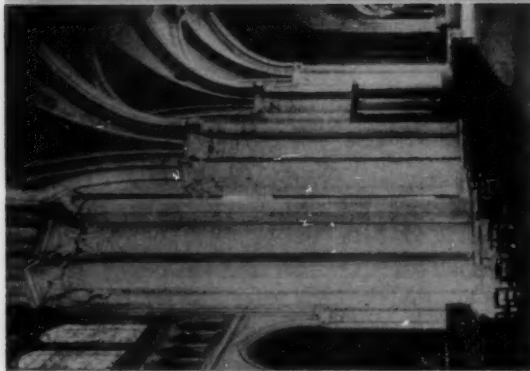
Dr. Ward is head of the Department of Fine Arts at Oberlin College. He is well known for his studies in Gothic architecture and the article herein printed is a portion of his forthcoming volume in this field. Its publication is eagerly awaited.



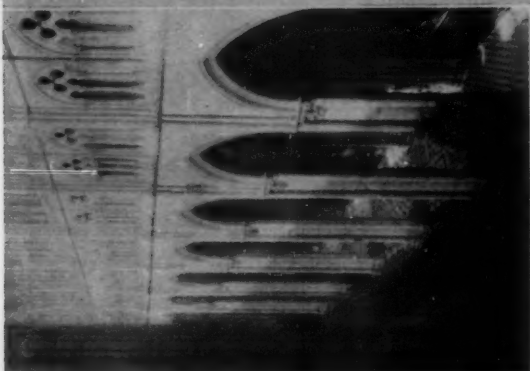
1- Beauvais - St. Etienne - Nave Piers - 2- Noyon - Cathedral - Nave Piers - 3- Laon - Cathedral - Nave -



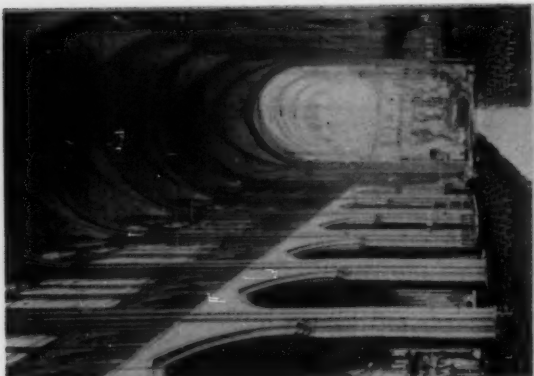
4 • Soisson • Cathedral • Nave



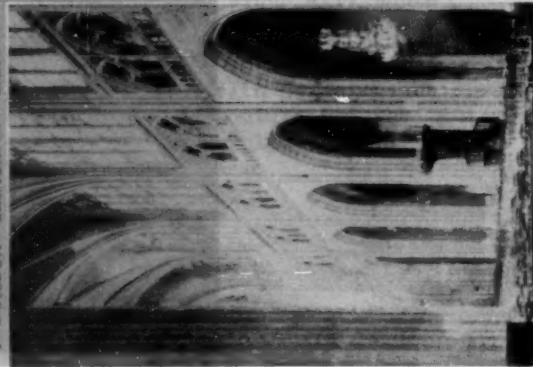
5 • Chartres • Cathedral • Nave Piers



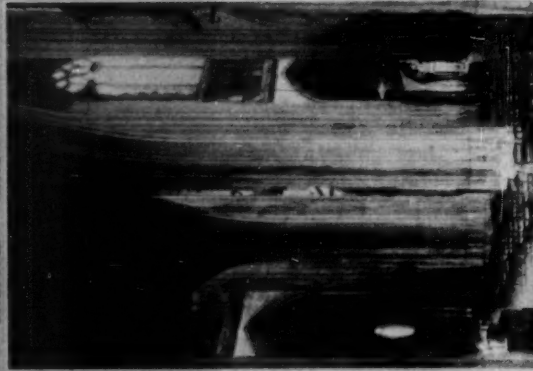
6 • Amiens • Cathedral • Nave



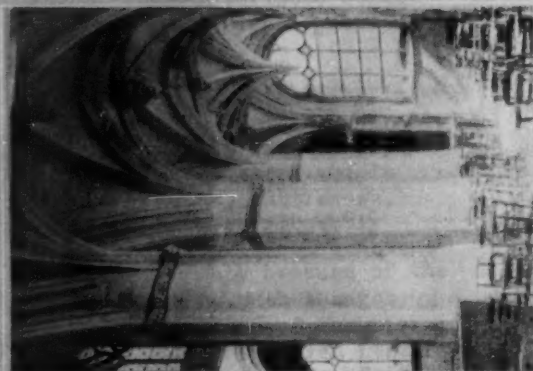
7 • St. Denis • Abbey Church • Nave



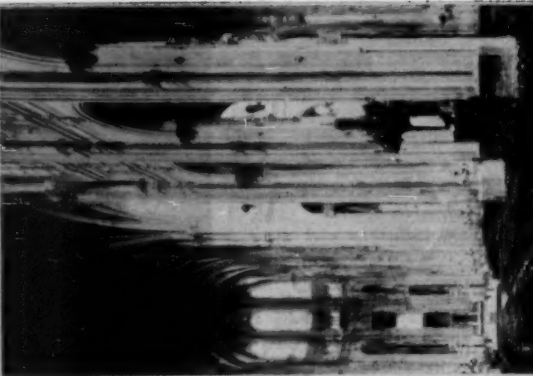
8 • Auxerre • Cathedral • Nave



9 • Roten • St. Martin • Nave Piers



10 • Falaise • St. Germain • Nave Piers



11 • Paris • St. Eustache • Nave

Developed Gothic I. c. 1210-c. 1230
Developed Gothic II. c. 1230-c. 1265
Developed Gothic III. c. 1265-c. 1373 (Rayonnant)

Late Gothic I. c. 1375-c. 1500 (Flamboyant)
Late Gothic II. c. 1500-c. 1550 (Debased)

Any such a chronology in an architecture, which, like the gothic, is in a continuous state of development, must necessarily be an approximate one. There will be much overlapping especially of retardative work at the end of each period, but it does at least establish the dates at which the most important changes in structure and decoration took place. These were almost always changes in the four principal structural factors, piers, vaults, buttresses and windows; and it is significant that of these the pier takes a new form in every one of the periods suggested by my chronological table, except in Developed Gothic I, during which the general form of Early Gothic III. persists but with certain minor modifications. In the paragraphs which follow I have selected one or more churches of each period in which the pier sequence may be advantageously studied.

The Transitional Period, c. 1125 - c. 1140

In the Transitional Period from c. 1125-c. 1140, there are two sorts of churches; those which were begun in the preceding Romanesque style and were then given ribbed vaults as an afterthought, and those which were planned from the ground up for ribbed vaulting. Since the latter, alone, may be considered as truly gothic, they are the ones the piers of which will be considered here. It should be recalled that the earliest gothic builders "inherited" three forms of pier from their romaneseque predecessors, namely, the heavy compound pier, the cylindrical pier, and the column. The gothic builder was faced with the question as to which of these should be chosen, or how they should be adapted to his new problem of the support of a ribbed vault instead of the groined vault, the tunnel vault, or the open timber roof of the preceding period. Naturally this choice depended in part upon the type of ribbed vault which he might develop. As a matter of fact, two such forms of ribbed vault were developed almost immediately and simultaneously, namely the sexpartite and quadripartite. But while the former became popular in Normandy, it was the latter which was used by the builders of the Ile de France during the Transitional Period.

Perhaps the most characteristic Transitional church is that of Saint Etienne at Beauvais. Its piers (Fig. 1) differ little from those of the preceding romaneseque except for the important fact that they are provided with individual shafts for each of the ribs of the four-part vaults which they support (2). Their proportions are heavy as measured by the diameter of each pier in relation to its height to the springing of the aisle vaults (3). In section they consist of a core of gemet-

(2) The original vaults presumably had no wall rib.

(3) In the Transitional period this height will rarely exceed three diameters even in the slenderest piers and is at times less than two.

rical plan with applied and nooked-shafts integrated with the masonry of the pier proper. These shafts are without banding and are of relatively heavy torus section.

Bases and Capitals

Pier bases differ little from those of the preceding romanesque. They generally consist of several superimposed square plinths surmounted by a rather broad torus with scotiae and one or more smaller tori above it. Griffes in the form of leaves or occasionally of real or imaginary animals or birds continue to be used, though the animate types are very rare. No one form of capital is characteristic of the Transition. In fact, all four of the major types developed in the earlier middle ages are to be seen. Thus there are numerous examples, especially in Normandy, of the geometric capital. The classic Corinthian types recur in altered form. Byzantine-Carolingian capitals and figured capitals are also occasionally to be seen though the figured capital of iconographical character is increasingly rare and almost never appears in subsequent gothic.

The capitals at Saint Etienne are in the Byzantine-Carolingian tradition, but they are also tentative forerunners of the budded or crocketed capital which was to be the major form during the entire early gothic period. But neither here at Beauvais nor in any church of the Transition does the capital attain the characteristic arrangement of two levels of budded foliage volutes to be seen in succeeding periods.

Early Gothic, c. 1140-c. 1210

Instead of the uniform system of heavy compound piers or the alternate system of such piers and almost equally heavy cylindrical supports already mentioned as characteristic of the Transition, the churches of the First Phase of Early Gothic have an alternate system of compound piers and slender columns. The system of the Cathedral of Noyon (Fig. 2) is representative (4). This is quite clearly in accord with the sexpartite vaulting which is now universal in the major portions of the church. In this alternation of supports, the heavy members do not differ to any extent from those of the Transition though they are at times better planned for the support of the ribs, as at Senlis and Saint Leu d'Esserent where five shafts are carried up their inner faces. They also show an increasing slenderness, as a comparison of those at Noyon, Mantes, or Gonesse with those of Saint Etienne at Beauvais will show. The intermediate support is normally a single column, but in a few instances, as at Gonesse and Sens, two slender columns are coupled transversely. At Noyon the compound piers carry five shafts for the ribs of the high vaults, and three for those of the aisle, with two others added for symmetry and carrying the inner order of the principal archivolts.

In the Second Phase of Early Gothic, the alternate system disappears and the builders employ a regular series of columns, laid up in horizontal drums without vertical joints. These columns are usually found singly as in the Cathedrals of Laon (Fig. 3) and Paris, but they

(4) But not the upper portions of the church, which are of later date.

are occasionally coupled transversely as in the nave of Saint Remi at Reims and the choir of Montier-en-Der. They are approximately five to eight diameters in height and crowned by foliate capitals. Such piers had the advantage of assuring the maximum of bearing strength for the minimum of floor space, thus opening up the interior from the point of view of visibility without impairing the strength of the superstructure. The retention of the six-part vaulting system did, however, create the problem of adapting the vaulting shafts, especially those of the alternate piers, to the abacus blocks. But this was met either by extending these blocks well out from the wall line or actually corbeling them out in the center as shown in the second pier from the right in the illustration of Laon.

It is not surprising that the somewhat awkward expedient of a corbelled abacus should have given rise in the Third Phase of Early Gothic to the addition of a shaft on the inside of each of the piers, as shown in the Cathedral of Soissons (Fig. 4). But this is not the universal usage, for this last phase of Early Gothic is itself a transition to Developed Gothic. Its earlier piers, such as those at Orbais L'Abbaye and Braisne, Saint Yved, continue to be of cylindrical section, while its latest piers, such as those at Chartres (Fig. 5), have four applied shafts symmetrically spaced instead of the one to be seen at Soissons (5). All piers, however, tend to become much more slender, a fact due in part at least to the omission of the triforium gallery. In addition, the number of shafts supported by each pier is now uniform since four-part vaults replace the earlier six-part system.

Bases and Capitals

Early Gothic bases of the First Phase resemble their Transitional prototypes. They generally consist of from two to four plinths, superimposed, decreasing in size and surmounted by a flattened torus, a scotia, and a second torus. On this the shaft rests, either without the interposition of an astragal, or with a very elementary form of this member. Scotiae are more than a semicircle in section and thus form a shallow trough around the pier above the tori. Plinths gradually change from a square to a polygonal plan, generally losing their griffes in the process. As the plinth is thus contracted, the torus begins to overlap its sides, as at Chartres (Fig. 5).

The figured capital of narrative type disappears completely in the Early Gothic Period, but the Byzantine Transitional form persists in the older portions of some churches. The tendency, however, is toward the use of a budded or crocketed capital such as those shown in the three examples illustrated in this paper. The development of these crocketed capitals may be traced, but only by subtle changes both in their shape and ornament (6). More readily studied is the evolution of the abacus. Beginning as a square, it is first either chamfered at the corners or corbelled out in the center, as already noted at Laon.

-
- (5) The principal changes marking this Third Phase of Early Gothic are in other factors of construction than the piers. For example, the elevation changes from four to three stories, the vaults change from sexpartite to quadripartite, and the windows in the later churches have plate tracery.
 - (6) There is neither the space nor sufficient illustration to trace this development here.

Then it is frankly made octagonal as in the western bays of the same church, or even circular as at Mouscron. In its final form it follows the plan of the pier with four shafts as shown at Chartres (Fig. 5). It is this last form which carries over into the First Phase of Developed Gothic.

Developed Gothic (c.1210-1375)

The earliest Developed Gothic piers, such as those at Reims and in the nave of Amiens (Fig. 6), continue the type evolved in the last phase of Early Gothic, but they are loftier in proportions and all their members are cylindrical instead of alternately cylindrical and polygonal as at Chartres. It is clear, however, upon an examination of these piers at Amiens that, while they provide a shaft for the transverse rib, they do not provide for all the vaulting ribs, since those of the wall ribs stop at the triforium string and those of the diagonals rest on the abacus blocks. Yet it will be seen that, even were these carried to the floor, the diameter of the pier would not be increased and hence there would be no considerable obstruction of floor space. It is not surprising, therefore, to find the builders of the Second Phase of Developed Gothic bringing all three of the principal vaulting shafts directly to the floor and adding additional shafts for each of the arch orders. There is thus evolved the slender compound pier of which the Abbey Church of Saint Denis (Fig. 7) affords perhaps the earliest examples in a nave arcade. With this form, the evolution of the pier has gone full circle from the earliest heavy compound piers of the Transition to these slender piers of Gothic Architecture at its height. From now until the coming of the Renaissance, this type of pier will be dominant, though not universal, and not without numerous minor changes both in section and elevation. One of the first of these changes may be seen in the Third Phase of Developed Gothic, in such a cathedral as that of Auxerre (Fig. 8), where the actual section of the pier is made to correspond almost exactly with that of the arches and ribs which it supports, with the very natural result that some of the capitals are entirely omitted and the arch mouldings carried directly down the face of the pier. This is, in fact, the characteristic Rayonnant form and the last step before the entire omission of the capital in the subsequent Flamboyant Period.

Bases and Capitals

Developed Gothic bases are similar to those of the preceding period, but there is an increasing lightness in all their members. Tori continue to overlap the plinths to a marked degree and they have the grooved top already described. The base as a whole follows the contour of the pier and thus becomes increasingly complex as the members which it supports increase in number. It is also increasingly lofty and slender in proportion to the height of the pier itself.

Early Developed Gothic capitals are among the finest in all Gothic architecture. This is due in some measure to the fact that the cylindrical pier called for a capital of considerable scale at the very moment when carving, especially of floral forms, was at its height. This carving itself tends to become increasingly naturalistic so that by the end of the thirteenth century the budded or crocketed type of Early Gothic gives way to a full-blown form. In the Second Phase of Developed Gothic the introduction of the slender compound pier brought about a marked reduction in the importance of the capitals. These are now pro-

portioned to the constituent shafts rather than to the pier as a whole, and thus decrease in size throughout both the Second and the Third Phases. The foliage also tends in the final examples to reach such a state of naturalness as to seem to climb in vine-like fashion from astragal to abacus. Meanwhile the abacus itself tends to draw back until it is sometimes invisible from the floor.

Late Gothic, c. 1375-1550

The two phases of Late Gothic are easily distinguished. In the first, or Flamboyant, period the forms and decoration are both still thoroughly gothic; in the second, the decoration is renaissance. But the Flamboyant period is also unusually eclectic, continuing to employ the principal elements of earlier Gothic, but giving them a great variety of new and original forms which sometimes verge upon the bizarre.

In the case of the pier, this dependence upon earlier Gothic for fundamental forms is particularly evident, for nearly every type of pier thus far studied appears again in Flamboyant guise. Among these it is natural that the compound pier should continue to play an important role. Excellent examples are to be seen in the Church of Saint Maclou at Rouen (Fig. 9) (7). Such piers are marked by a number of distinctive characteristics. In the first place, the capital has entirely disappeared. Secondly, the shafts have been greatly increased in number and are of distinctly prismatic section. These are all Flamboyant Gothic characteristics. Later in date and affording an example of a revival of the pier with four applied shafts is the church of Saint Gervais at Falaise (Fig. 10). Here again the Late Gothic features are evident. The applied shafts are prismatic, the foliage of the capitals is cut back into the pier and is very naturalistic, almost windswept, while most of the arch members sink back into the shaft core above the level of the abacus. Many other variations of earlier pier forms could be cited, but they would all have such tell-tale characteristics of Late Gothic as those mentioned in connection with Saint Maclou and Saint Gervais.

The Second Phase of Late Gothic may appropriately be termed Debased, not from any lack of skill on the part of the builders or because of any decrease in scale, since some of the churches such as Saint Eustache at Paris (Fig. 11) are of outstanding proportions, but because their architecture is no longer purely gothic but a mixture of gothic structure and renaissance decoration. Piers now have the form either of actual classic columns or of compound piers in which the applied members are no longer slender shafts but pilasters, columns, or colonettes. These are easily recognized by anyone familiar with their classic or Italian Renaissance prototypes.

Bases and Capitals

Flamboyant bases naturally vary in accordance with the piers which they support, but they have certain general characteristics. Plinths are almost always high, frequently extending at least three feet above the floor. They are generally plain polygonal blocks, even when used

-
- (7) This is not in the Ile-de-France, of course, but by the end of the fourteenth century there was much less distinction between the regional styles than there had been earlier.

beneath cylindrical piers. When the pier is compound, a group of smaller polygonal plinths generally rests on this larger one, their height above the floor protecting their delicate mouldings and making them readily visible. These separate plinths often vary in height according to the shafts which they carry. In almost all these bases there is an ogee curve, forming a sort of transition moulding just beneath the astragal. Such bases persist during much of the Late Gothic Period, but in the Debased Phase they are usually replaced by pseudo-classic bases with well defined quarter-rounds, tori, and scotiae, and a definite astragal to mark the transition to the shaft, column, or pilaster above.

Needless to say, this brief paper cannot pretend to be an exhaustive study of the gothic pier, but it may perhaps serve to show that superb quality of evolution which makes gothic architecture, especially in France, so fascinating and rewarding as a source of study and enjoyment.

* * * * *

A DEFINITION FOR GOTHIC ARCHITECTURE BY VIOLETT-LE-DUC

from the article Style in his Dictionnaire raisonné de l'architecture (in contrast to Gothic Architecture Defined by John Carter of London. See Journal A.S.A.H., July '43)

To find a system of structure that is free, and applicable to all problems, permitting the use of all materials, lending itself to all combinations--vast and simple alike; to invest this structure with a form which is the very expression of the system; to decorate this form by emphasizing and never contradicting it; ... to give this structure... proportions that are based on simple, comprehensible and evident principles of stability; to enrich the mass by a methodical application of ornamentation derived from nature by means of a sensitive observation of vegetable and animal organisms; and finally to apply to this finished architecture, a decoration of statuary, subordinated to monumental requirements so that it adheres to the building and forms part of it; this, in summary, is what our lay school of the end of the 12th century accomplished.

- Contributed by Leo Arnaud

* * * * *

EARLY ROMANESQUE CHURCH TOWERS OF TOURAINE - continued from page 23.

Touraine at that moment when Romanesque sturdiness was not yet lost as it sought to adjust itself to the taste for height, verticality of line, and richness of detail that marked the trend toward Gothic design. Even that paragon of towers, the south tower of Chartres, is but a notably harmonious integration of the components of design that came into being a century earlier in the towers of Touraine.

* * * * *

THE BRUTON CHURCH OF 1683 AND TWO CONTEMPORARIES

by Thomas T. Waterman

The recent excavations in Bruton churchyard in Williamsburg, Virginia, uncovered remarkably complete foundations of the church of 1683, about which little has been known up to this time. Due to the destruction of the church records by fire about 1850, while in the custody of the rector, Mr. McCabe, only fragmentary documentary information remains regarding the building of this, or the subsequent and present church of 1715. Excerpts from the records preserved in Mr. McCabe's writings (1) tell us that in 1677 the Vestry decided not to repair either the upper or lower churches of the parish, but that "a New Church should be built with brick, att the Middle Plantation." (2) The specification was written in 1679 and provided for a west and a chancel door.

The life of this church building was short, due no doubt to the capital of the colony being moved here from Jamestown in 1699. The church was then inadequate in size for the new parochial needs. Because of the rapidly changing architectural taste then infiltrating into the colony, the building was already old fashioned in 1711 when the Vestry submitted a plan for the new church to the assembly (3). Except for a very poor sketch (fig. 1) made in 1702 by Michel (4), the Swiss traveler, we know nothing of the appearance of the superstructure of the old building. His drawing is so poorly delineated that it is unreliable, but it seems safe to accept it as showing the gable walls to have projected above the roof and to have been treated with curvilinear parapets, perhaps like those on Bacon's Castle (5). He also shows a pair of arched windows above a square-headed front door and a bull's eye window in the gable. The drawing also shows the churchyard wall, which may be incorporated in part of the present wall which was built by Emery Hughes in 1749 (6). At the west side on axis with the church of 1683 is seen a gate apparently in the position of an opening in the west wall, now closed.

-
- (1) William and Mary Quarterly (1st Series), III, p. 171.
 - (2) Church Review and Ecclesiastical Register, 1855-6, VIII, p. 591.
 - (3) Ibid, p. 608.
 - (4) Virginia Magazine of History and Biography, XXIV, p. 275.
 - (5) Waterman and Barrows; Domestic Colonial Architecture of Tidewater Virginia, Scribners, 1932, p. 23.
 - (6) Goodwin, W.A.R.: Sketch of Bruton Church, p. 39.
-

Mr. Waterman is an authority on the early architecture of Virginia and adjoining states. He served on the research staff of the Williamsburg restoration, and did yeoman service for the Historic American Buildings Survey. The JOURNAL welcomes this stimulating study of Gothic survivals in America.

In the recently uncovered foundations, the walls of the church ranged from 1 foot, 11 inches to 2 feet, 3 inches in thickness, and formed a rectangle 28 feet, 5 inches by 65 feet, 1 inch (fig. 2). Buttress projections to the north and south showed a building of four bays or compartments. The three western bays were 12 feet, 8 inches from center to center of buttresses and the eastern bay 14 feet, 3 inches. At either end of the building the buttresses were set back from the corners, at the west end by 5 feet and at the east end by 4 feet, 8 inches. The abutment system was partly obscured by the removal of most of the two northeast buttresses for the erection of the Bray tomb and the covering of the center buttress of the south wall by tree roots.

The recovery of the walls of this early church revives interest in the two other Virginia buildings of this quasi-Gothic buttressed type, Jamestown Church and St. Luke's Smithfield, and raises the question of their antecedents. Jamestown is the earliest of the three, it being very certainly the one referred to by Harvey in 1639 when he wrote to the Privy Council, "out of our owne purses we have largely contributed to the building of a brick church." (7) The building was probably burned in the fire of 1676 and subsequently reroofed. The foundations were preserved, after the disappearance of the building late in the eighteenth century, and upon them the present church was built about 1907. The ruinous tower was incorporated without change into the modern church.

The Jamestown church foundation measures about 50 feet, 6 inches long and 22 feet wide (fig. 3), and it enclosed the 12 inch walls of the earlier church, perhaps that built by Argall in 1619 (8). The 1639 church was of three bays, the westernmost bay being one-third narrower than the central and eastern bays. This may perhaps be explained by supposing that it contained a western gallery, such as later came to be almost typical of churches of the region. The western tower was built independently of the church, perhaps at a different date, and stood free of the west wall by a few inches.

To understand the reason for building so medieval a structure in Virginia at a time when the Renaissance was well launched in England, it is necessary to realize that the builders in the colony were master builders, building in a traditional way rather than as architects working from books of designs. The Jamestown church was removed from its Gothic prototypes in England by less than a hundred years, and its builders, from the evidence of contemporary remains, were little influenced by later buildings. The period was one of political and artistic confusion in England itself. During it were built almost contemporaneously such contrasting structures as Inigo Jones' scholarly essays in Palladian design, the Queens House (1618-35) at Greenwich (9) and the Banqueting House (1619-21) in Whitehall (10), and such magnificent Perpendicular Gothic buildings as Christ Church College, Oxford (1630) (11).

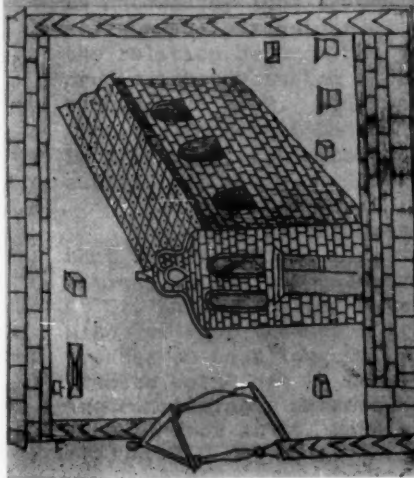
(7) Yonge, Samuel: Site of Old James Towne, Richmond, 1903, p. 65.

(8) Ibid, p. 65.

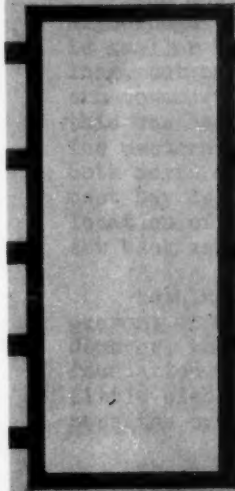
(9) Fletcher, Sir Banister: History of Architecture on the Comparative Method, Scribners, 1931, p. 793.

(10) Ibid, p. 788.

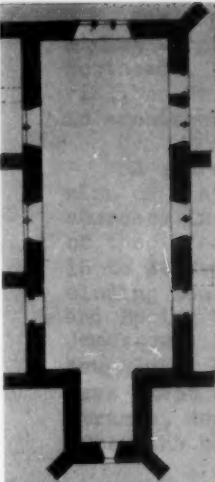
(11) Vallance, Aymer: The Colleges of Oxford, London, 1912, pl. XXXVI



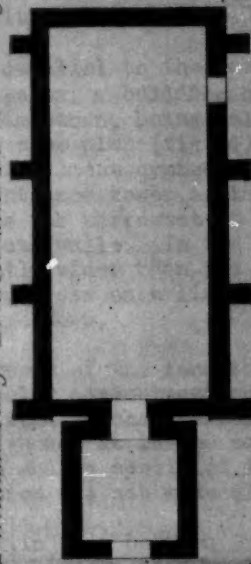
1 • Williamsburg • Bruton Church (Michel)



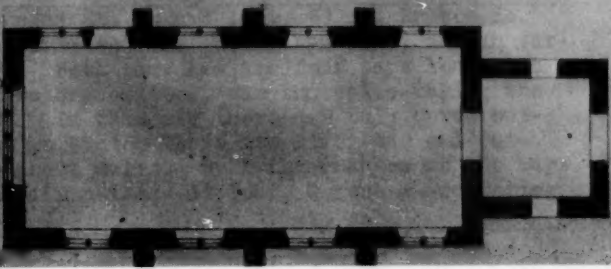
2 • Williamsburg • Bruton Church • 1683



4 • Little Wigborough (Essex County England) • Parish Church



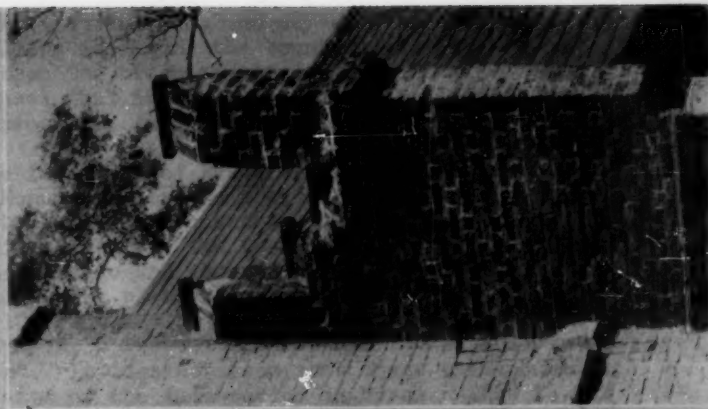
3 • Jamestown • Va • Church



5 • Smithfield • St. Luke



6 • Smithfield • Va • St. Luke's Church • from southeast (Bostrup)



7 • Smithfield • St. Luke • Gable (Bostrup)

The region of England in which one may seek precedent for seventeenth century Virginia building is Essex, the county adjoining London to the northeast. It has been the brick country of England since time immemorial, so it was natural that its builders should be leaders in evolving an architectural expression characteristic of this material.

A search of the Inventory of Essex compiled by the Royal Commission of Historical Monuments reveals a great many small unaisled parish churches in which the chancel is unexpressed in plan, - the plan-type of the three Virginia churches. The Essex buildings range in size from 15 to 24 feet, 6 inches wide and from 38 to 87 feet, 6 inches long, excluding two abnormally long plans, such as Little Chesterford (179 feet) and Epping Upland (109 feet). The Virginia churches are of two sizes: Jamestown, 22 by 50 feet, 5 inches; and St. Luke's and Bruton, both roughly 25 by 61 feet. It does not seem that these three buildings have exact counterparts of the same period in Essex. This is not strange, however, because little church building occurred in England after the break with Rome in 1536-40, except in urban areas.

The nearest parallel to the Jamestown church seems to be Little Wigborough (12), Essex, a building of the late fifteenth century. It is smaller than Jamestown, being only 17 feet, 6 inches wide, by 45 feet long, but has the same plan (fig. 4). It is of three bays with a western tower (which is almost typical of English county churches) though this was not an entrance tower as it seems to have been at Jamestown. The western bay is the narrowest of the three and had exterior doors in both north and south walls. In the case of this building the easternmost bay is slightly wider than the central bay, but this was due to the location of the buttress on a line with the east wall, instead of being set back as at Jamestown.

Nothing is known of the fenestration of the Jamestown church, the present windows being conjectural and based on those at St. Luke's. However, the location of the chancel door was determined from the foundation which showed it in the same bay as that in St. Luke's and Little Wigborough and as specified for Bruton, though in the latter case the orientation was not made clear.

The parallel in size between Bruton and St. Luke's is so remarkable that some relation between them would seem certain. In this respect it is noteworthy that Bruton was built in the same year, 1682, that scholars generally consider as the completion date of St. Luke's. In view of the relation between the two, it would now seem safe to consider the proper interpretation of the defaced date brick at St. Luke's as 1682, rather than 1632. Additional evidence to support this may be derived from the fact that the building of so large a church is quite unlikely in a sparsely inhabited community, only ten years after the great massacre.

The major differences between St. Luke's (fig. 5) and Bruton is that the former has a western tower and the latter has none, and in variations in the buttress system. Both churches are four bays long, but at St. Luke's the end buttresses are omitted, the end walls taking the place of roof trusses (fig. 6). In this way there are only three buttresses on each long wall, but at Bruton there are five, the end buttresses being set in from the short walls. By this arrangement the bays are considerably narrowed, the dimensions--12 feet, 8 inches--comparing with 15 feet at St. Luke's.

(12) Royal Comm. of Historical Monuments, Inventory of Essex, III, p. 175

- 206 (19th c. functionalism), 214 (master builders), R 35 (Uthwatt and Scott reports), 223 (Bristol, hist.mon.markers)
- 161 Canford Magna. by B. Jones. il (Arch.Rev. v.95, p.86-90, Ap '44)
- 162 Chiswick; Lord Burlington's Bijou or Sharawaggi at _____. by H.F. Clark. il (Arch.Rev. v.95, p.125-9, My '44)
- 163 Edinburgh, University buildings, Unpublished letter concerning. by W.F. Gray. port. (Arch.Rev. v.95, p. 111,2, Ap '44)
- 164 Filkins, Gloucestershire, a modernized village. by C. Hussey, il (Country Life Lond. v.95, p.728-31 Ap 28'44) Hatchlands, Surrey. See 224
- 165 Havering, Essex; Bower House, II. by C.Hussey. il (Country Life Lond. v. 95, p. 508-11 Mr 24 '44) London; County of _____ plan. See R 21
- 166 ____; Victoria Way (glass & iron boulevard arcade); Paxton's glass girdle, 1855. by Astragal. il.plan (Archts. J. v. 99, p. 346-7 My 11 '44)
- 167 Norwich, cathedral; Le Grice, E.: Norwich cathedral, its interest and beauty. Norwich, Soman-Wherry press, (1943). 46 p. il.
- 168 Richmond Palace, Surrey. I,II. by C.Hussey. il (Country Life Lond. v.95, p. 640-3, 686-9, Ap 14, 21 '44)
- 169 Sutton-at-Hone, Kent; St. John's Jerusalem. by C.Hussey. il. (Country Life Lond. v.95, p. 552-5 Mr 31 '44)

Greece

- See R 27 (anc.Gk.archit.), 216 (monasteries), 183 (Colophon,Ionia)
- 170 Athens, Parthenon; Stylobate of the _____. Abstr. by G.P. Stevens (Am.J.Archaeol. v.48, p. 87 Ja '44)
- 171 ____; Tholos of _____ and its predecessors. by H.A. Thompson (J.Hell. Stud. v.62, p. 102 '42)
- 172 Cnossus; Alleged fortifications of _____. by A.W. Lawrence. plans (J. Hell.Stud. v. 62, p. 84-5 '42)
- 173 Ionian agora. by R.E. Wycherley. bibliog. il. plans (J. Hell. Stud. v.62, p. 21-32 '42)

Italy

- See R 27 (anc.Roman archit.)
- 174 medieval; Art and the commune in the time of Dante. by H. Wieruszowski. bibliog. pl. (Speculum, v.19,p.14-33 Ja'44)
- 175 Ernest Nash; Roman Towns
- 176 Florence, a project for a map 1250-1296; with a list of properties, by sestis, parishes, block numbers. by F.J.Carmody. bibliog. map (Speculum v.19, p.39-49 Ja'44)
- 177 Monte Cassino (Minneapolis Inst.Bul. v.33, p.41, Mr 18'44)
- 178 ____; A visit to. by J.H.Scarff. il.plan (J.AIA v.1, p. 170-5 Ap '44)
- ____, See 217
- Naples; Museo Filangieri. See 218
- 179 Rome; Basilica Aemilia. Excavations have determined ground plan, extent, and form (Am.J.Archaeol. v.48,p.91 Ja'44)
- Sicily, war damage, see 219

Russia

- See 226 (reconstruction)
- 180 Russian city planning of the 18th and early 19th centuries.

by H. Blumenfeld. plans (J.ASAH. v.4, p.22-33 Ja '44)

Spain

See 159 (Ruiz Florindo)

181 Granada; Palace of Charles V at _____. by G. Loukanski. il.
(Burl.Mag. v.84, p.119-124 My '44)

182 Santiago de Compostela; Peregrinación a _____ y la arquitectura
románica. by E. Lambert. il.plan (Archivo español de
arte. no.59, p.273-309 S-Q '43)

Turkey

See R 26 (Constantinople, Hagia Sophia)

ASIA

Turkey

183 Colophon, Ionia. by L.D.Holland. maps. excav.plans.views
(Hesperia, J.Am.School of Class.Stud. v.13, p.91-171,
Ap-Je '44)

China

184 architecture; Chinese art, 3d article, part 2. by V.Rien-
aecker. il(Apollo, v.39, p. 61-2 Mr '44)

Iran

See R 37 (Persepolis)

Iraq

185 Lloyd, Seton. Ruined cities of Iraq. London, Oxford univ.
press, 1943 (2d ed.) 78 p. il.plans.maps.

See R 33 (Nuzi (ancient city) real estate transactions)

Japan

Buddhist architecture, R 22, R 23

NORTH AMERICA

Canada

186 New Brunswick; Interiors of pioneer houses in _____. (Canad.
Geogr.J. v.28, p. 238-43 My '44)

United States

See 138 (archit.archives), 144 (exhib. Greek Rev.), 148, 149,
150 (Buffington), 153, 154 (Jefferson), 155 (Latrobe), R 24,
R 25 (Greek Rev.), 225 (preservation)

187 American Georgian architecture. by T.J.Wertenbaker. pls.
(Am.Phil.Soc.Proc. v.87, no.1, p.65-9 '43)
(Abstr. Am.J.Archaeol. v.48, p.99-100 Ja '44)

U.S., Northeastern States

Connecticut, New Haven, Sachem's Wood, See 220

Rhode Is., Newport, Tower, see R 32

U.S., Middle-Atlantic States

188 District of Columbia, Washington; Browning, Mary E.: Our
nation's capital, a portrait in pictures. N.Y., Has-
tings ho., 1944, 101 p. il.

189 _____; Washington, a planned city in evolution. by U.S.
Grant, 3d. il.plans (J.AIA, v.1, p. 123-36, Mr '44)

190 _____; Problems in restoring the plan of Washington. by
H.P. Caemerer. (J.ASAH. v.4, p.34-40 Ja '44)

New York, New York City, see 139 (archit.criticism, 1854)
204 (interiors, S.Nicholas, Hoffman House, and Waldorf-
Astoria hotels)

191 _____; Lutheran church in _____, 1649-1772; records in Lu-
theran church archives at Amsterdam, Holland (NY Pub.
Lib.Bul. v.48, p. 31-60, 409-18 Ja, Ap '44)

Regions being studied are: in the East: Virginia, the District of Columbia, and the cities of Norfolk and Richmond; in New York State, New Netherlands, Syracuse, and the Mohawk Valley; further west: Ohio River towns, the Mississippi Valley, Louisiana, Michigan and Detroit, Kansas, Indiana, and the West Coast after American occupation. Other studies are being devoted to regions outside the United States: Latin-America, particularly Mexico, Guatemala, the British West Indies, Spain, sixteenth-century Italy, Hellenistic Greece, Byzantium and Iran.

Two useful reference works are reported in progress. One is a dictionary of art terms in five languages: English, French, German, Italian and Spanish, with other languages such as Russian to be added later. This is being done by Dr. Zdenka Munzer and is to be ready in a year. The other is Roger Newton's "Biographical Dictionary of Builders, Artists, and Artisans in the United States from colonization to World War I; 1620-1914." This is reported as being half done, the material on architecture being furthest advanced. Newton offers access to his card files at Avery Library to members of the A.S.A.H. He will be glad if others will contribute data.

Subjects in progress classified according to building types indicate that houses and churches are the types most studied. City planning comes third (one top authority in this subject regrettably disclaims scholarly leanings). Other types are industrial buildings, public buildings, commercial buildings, exposition architecture, railroad stations, libraries.

Some work on construction and material is being done, particularly Bannister's "Early Iron Architecture from ancient times to 1700," a manuscript now completed. As I have seen some of it, I can report that it is a treasure house of facts and discoveries. Bannister has the material in hand to carry this story on to 1860. There is also some other work being done on cast iron. There is one projected study of the elevator.

The professions of architecture and civil engineering in their historical aspects in this hemisphere are being investigated. I am mentioning here some topics which do not belong in the preceding groups. A fundamental study of a type which I hope will have many successors is that of the "Worship and Liturgy of the Protestant churches during the 19th century." It is a study basic to future analysis of 19th century religious architecture. I once tried to find out something about nineteenth-century liturgy, but my ignorance was not to be assuaged by any book I could find; hence my keen anticipation of Walter Taylor's project. We are promised comprehensive books on the Art Nouveau and the log cabin. Three analytical studies of the nineteenth century are: French architecture since Napoleon, nineteenth-century eclecticism, and English Victorian architecture from 1835-1890. The latter will correlate structural developments, aesthetic programs, modifications of taste, expansion of functional types, and the social and intellectual background. It will be based on drawings in the R.I.B.A. and Victoria and Albert collections, and photographs of the British National Buildings Record. Unhappily we may have to wait three years for its completion. There are two comprehensive histories of American architecture in progress.

Projects in ancient architecture include the Palace of the Dux at Dura-Europos; a corpus of Hellenistic temples including stylistic analy-

sis; public and private buildings at Olynthus. Projects in the medieval and oriental fields include a bibliography of French Gothic architecture; lost monuments of the early medieval period, morphology and structure; minor Byzantine churches in Greece and the Islands; a corpus of early Iranian Islamic architecture; Persian vault construction; origin and development of Mukarnas (stalactite vaults); Persian dome construction. Projects in later periods not mentioned elsewhere will deal with Vignola and Mannerist architecture in Central Italy covering also the relationships between architecture and the other arts at that time; the role of spectacles in Italian art in the sixteenth century; Italian villas and villa life in the sixteenth century; the chapels of the Chateau de Versailles, history, documents and attributions; sketches of Spanish Baroque; the Steinway Village on Long Island.

Sigfried Giedion has a new book nearly ready for the press on "Interrelationships of Art, Mechanization and Life." He has also written "The Need for a New Monumentality," which has just been published in Paul Zucker's recent volume on "Architecture and City Planning."

One of our elder professional members promises a critique of our ideas and misconceptions which we should find stimulating.

Part Two -- WANTS

A query which drew numerous and suggestive answers was, "What subjects of special study undertaken by someone else would profit you most?" Again the largest group of wants is in the field of the nineteenth century with fervently expressed wishes for local and regional studies of American architecture. It has been noted above that this is also the field of greatest activity. Several individuals wish that the Latrobe papers could be published although one cynic writes, "the Latrobe Papers exposed and rid of rumored (and over-rated?) tremendous significance."

Interest in classical architecture does not seem to be high at present, although studies of the Greek house, stoa and fountains are wanted. Since the call for studies of building types is growing, it is clear that authoritative studies of classical prototypes will be welcomed. Other building-type studies solicited are: state capitols; the nineteenth-century house; a photographic study of the small rural New England Churches between 1840-75.

In the medieval field one writes for a summation of the current status of the controversy on the ribbed vault. Others call for studies of Carolingian, Byzantine, and Russian churches. It is readily agreed that a study of Byzantine building materials, techniques and structural practices which will establish reliable criteria of date would be of great usefulness. Studies in the Oriental field are sought as follows: Islamic and Pre-Islamic architecture in Russian Turkestan, and Chinese and Japanese architecture. Although books on the two latter subjects are becoming more numerous, they have so far failed to meet our requirements.

There is some interest in the decorative arts; more is wanted on aspects of American decorative arts, and on the whole field since the Renaissance provided that it is sound history and not merely appreciative.

Several writers want a study of architectural education based upon the curricula that have been tried and discarded. Related to this are the requests for study of the place of art in the college curriculum, and the development of the architectural profession. The extremely useful tool of a complete check list of architectural periodicals is badly needed.

Three requests apply to construction; one a history of American construction comparable to that by C. F. Innocent on English building construction (since it was published nearly thirty years ago (1916) we are far behind). The new one should include labor, materials, and equipment. A second related need is for a history of masonry construction in the nineteenth century, and the third is for more on cast iron.

Some of the aids which correspondents stand in need of are; nineteenth-century New York, particularly the work of Hunt's pupils; a new study of the seventeenth-century buildings on the Atlantic seaboard documented and detailed (such a corpus, if carried out as meticulously as the Wren Society publications, would be of inestimable value to students of every phase of American architecture); a review of the middle-Victorian Italianate fashion; architects of the Chicago school other than Sullivan and Wright; architects of the south other than Mills and Latrobe; regional and local research into American artists and craftsmen. Other forms which American studies might take have been suggested such as: topical studies according to building type, particularly the tall building; topical studies according to material; and developmental studies, emphasizing morphology, for the whole period, especially the critical years 1750-1820. The reader will not have failed to note that the wants of some writers are the projects of others.

In view of the rising tide of Latin-American studies, it is natural that the inadequacy of the existing material on Spanish architecture should be felt. This is shown by the expressed lack of satisfactory analyses of Spanish sixteenth and seventeenth century architecture, Spanish Post-Renaissance architecture, Retablo architecture, and Latin-American Post-Renaissance.

Lewis Mumford has indicated several fruitful fields of inquiry. He calls our attention to three projects. First; American industrial architecture from 1870-1910, the lofts, warehouses and factories from Baltimore to Minneapolis, many of which are now on the point of destruction and which connect with the skyscraper and anticipate the solutions of Richardson. The solid worth of these buildings, though grimy, is in danger of being overlooked because of a natural preference for the more picturesque aspects of the period. Second; the fresh domestic architecture of Washington and Baltimore which grows out of the Commonwealth Avenue achievements and is a link between Richardson and Wright. Third; the work of Bernhard Maybeck and the Berkeley School in general, including John Galen Howard. Here we have a creative center of a domestic tradition. Maybeck personally is a foil for Wright. He may still be alive and the opportunity of working with him should not be put off. Mumford remarks also that the Architectural Review (London) is blazing the way toward a general reevaluation of the architecture of the recent past.

An eloquent plea was received for a greater degree of coordination between architectural historians. It was proposed that we formulate the aims of a campaign of research and then plan its execution as a group. It was also suggested that at the same time an effort be made to convince the public that architectural research is neither a luxurious nor merely selfish pastime.

Part Three -- MATERIAL

A third part of this survey is the listing of some source material which may not be widely known. The number of items received shows that there is a fine spirit of cooperation already if not the comprehensive over-all program suggested above.

In reply to my question "Are you in touch with a body of material of value to some other men..?", the answer "I hope I am" came from the director of a very large museum.

The generous spirit of the replies is indicated by John Coolidge's offer to let some one else make use of his material on the Gothic Revival in America before the Civil War. David Robinson says that he has considerable material on the Greek house. Ralph Fanning reports that his water colors of Early Ohio houses are to be deposited at the Ohio State Historical Museum. Giedion calls our attention to the treasures available in the Patent Offices at Washington and Richmond. (By the way, what was the ultimate fate of the Patent Office collection of Models?) Frank Chouteau Brown says that he has more than 900 photographs of the HABS taken in New England, Pennsylvania and New York State in the process of being catalogued. Roger Newton, as mentioned above, offers access to his dictionary material. Thomas Waterman calls our attention to the records of the Moravians in Winston-Salem and Bethlehem. Mary Scott says that the policies of the Mutual Assurance Company in microfilm at the Virginia State Archives are very valuable. John Bayley has a complete list of the works of the firm of G.W. and W.D. Hewitt of Philadelphia. The Hewitts studied with Notman and Eastlake. Louis Sullivan, Hardenburgh and Trumbauer worked in their office at one time. Their work included the Bellvue-Stratford, Academy of Fine Arts, the Zoo and innumerable office buildings, Main Line houses and churches. Charles Stotz reports that there is material on the architecture of the New Harmony Society in the Great House at Economy, Pa. Kenneth Conant offers access to his archives on Cluny and related material. Hugh Morrison at Dartmouth has a student manuscript of considerable merit on the buildings at Orford, New Hampshire, between 1795-1855, one of which is probably a Bulfinch. There are photographs and documents, but it is in need of skillful editing for which he has not the time.

Talbot Hamlin reminds us that the Avery Library has extensive collections of original drawings by A. J. Davis, Martin Thompson, Calvin Pollard, Richard M. Upjohn, Ratlief Lienau, Magonigle, R. A. Cram, Electus Litchfield, as well as some by Henry Austin, Gilman, and Bryant and many contemporary architects. A recent addition consists of drawings by Calvin Stevens of Portland, Maine, Hamlin is hoping to secure Frank Freeman's drawings too, at the suggestion of Alan Burnham.

Dimitris Tselos writes that among the useful Master of Arts theses in his possession are: "Henry Van de Velde," "James W. Root," and "R.M. Hunt." An up-to-date listing of all such theses would be a worthwhile project. (Continued on page 54)

B O O K R E V I E W S

ROMAN TOWNS. Photographs and text by Ernest Nash.
J. J. Augustin, Publisher, New York. 1944

Reviewed by Dr. Paul Zucker

These photographs are of importance to the architectural historian since they show subjects in his field, some unfamiliar, which are seen for the first time with modern eyes. It is an old cross of our profession that we are so often compelled to work with inadequate photographs taken perhaps twenty or forty years ago. Photographers of that day tried all too often to get an axial and frontal point of view and to catch the monument as comprehensively and symmetrically as possible, almost like an elevation. Interesting angular views were carefully avoided. The result in most cases is extremely boring, pedantic and lifeless, since the plastic values are almost abolished. Thus, a student who has not seen the original can rarely grasp the beauty of the building.

This new publication contains the work of a gifted photographer who proves clearly that he has gone through the visual experiences of the last twenty years. Fortunately, Ernest Nash did not succumb to the fashionable snobism of taking each picture from the perspective of a prostrate frog, a cliché much abused by some modern photographers.

Not only is Mr. Nash an able photographer, but the text proves him a well educated archeologist who knows his subjects and their history. The selection of excavations and monuments of Rome, Ostia, Pompeii, Herculaneum, Paestum, Pozzuoli, Tivoli, and Fiesole, which represent the main contents of the 138 photographs, is intelligently offered, and the condensed introduction gives a clear survey of Roman architecture. By minimizing long familiar monuments, dwellings and commercial and industrial buildings receive a more thorough treatment than is usual in books on Roman architecture. The introduction provides a series of clearly developed ground plans which help the understanding of Roman and Pompeian house arrangements. Some are based on known reconstructions, and others on independent research, as, for example, the apartment house of Diana in Ostia. The city planner will especially enjoy the views of the Forum Trajanum which clarify the topographical situation better than any other photograph yet published.

The introductory juxtaposition of modern New York buildings with their Roman ancestors is perhaps not necessary as *captatio benevolentiae* since it may be supposed that technical readers of such a book would be aware of the influence of Roman architecture upon the classical revival of the 19th century in the United States; for laymen, however, it may be a stimulating point of departure.

It is sad to think that some of these monuments, like the House of the Vettii and certain other great buildings, will never again be seen as herein depicted. It is all the more fortunate that these photographs

were made by an artist who combines a modern visual conception with archaeological understanding.

* * * * *

THE BUILDERS OF THE BRIDGE; The Story of John Roebling and His Son.
By David B. Steinman. Harcourt Brace, New York, 1945.

Reviewed by Dr. Paul Zucker

This excellent book by Dr. Steinman is certainly not presented as a work in the history of architecture. It records, however, one of the most important chapters in the development of American constructive art, the building of the Monongahela Bridge, the Niagara Suspension Bridge, and the world famous Brooklyn Bridge. The dramatic life stories of the two great bridge builders, the Roeblings, father and son, are told by a man who, having erected himself some of the best modern bridges in the United States, knows exactly how little is done by drafting and calculating alone. John Roebling died of his Brooklyn Bridge; his son was crippled for life by his work on it. Seldom are the personal lives of creative artists so closely connected with their works; still more seldom are the personal fates of engineers.

There is no need repeating here the exciting story of two generations so masterfully told in the book itself. For the historian interested in the development of modern architecture, it is sufficient to know that Mr. Steinman's book contains a basic history of the gradual evolution of the principles of suspension construction. Biography and technical analysis are skillfully interwoven. How unfortunate it is that no historical research will ever make it possible to give a corresponding picture of life and work of any of the great medieval builders who likewise spent their lives on the great cathedrals, the three-dimensional expression of their epoch.

The book is based on abundant research handled in a straightforward manner, without endeavoring to develop any historical or aesthetic theory. That is exactly what architectural historians, just now beginning their work in organizing the nineteenth century, need most.

* * * * *

STONES OF GLORY - STONES OF FRANCE. A Pictorial Sequence of French Architectural Monuments. Text and Photographs by Alexander Frenkley. International University Press, New York, 1944.

Reviewed by Dr. Paul Zucker.

This collection of photographs of some of the most famous architectural monuments of France makes no scientific pretention. It is a work of love calculated to recall well known works of art. Although the photographs in quality and exactness cannot be compared with the photographs of Roman Towns by Ernest Nash, or those of Hellas and Egypt by Huyjingen-Huene, or of Spain and India by Huerlimann, there are sometimes surprising shots which open new vistas. The Roman theater in Orange, reproduced in four different views, one shot of the Garden of

the Fountain in Nimes, seen from a very low point of view, and the Roman amphitheater in Arles convey better than any other photographs known to me a realization of depth all too often entirely lost by conventional photographers. On the other hand, the Gothic cathedrals, as well as their sculptural decoration, - like Reims, Laon and especially Rouen - are unduly romanticized by queer angles of photographic approach, thus actually perverting the structural idea. Obviously the author is more at home with ancient monuments than with the medieval ones. However, the book as a whole shows such a sincere enthusiasm for the historic buildings of France that every lover of this rich architectural treasure will enjoy perusal of it.

* * * * *

CURRENT RESEARCH IN ARCHITECTURAL HISTORY - continued from page 51.

Yale has been fortunate in securing gifts from the collections of several railroads toward a file of plans and photographs of nineteenth century railroad stations. There is in New Haven a unique archive which though known to few is still not widely enough known. This consists of some three hundred folio size scrapbooks in which Arnold Dana has been methodically collecting material on the history of New Haven and Yale. The volumes on New Haven are arranged according to streets and in them are old and new photographs of buildings and their owners together with related documents and newspaper clippings. The material on domestic architecture of the nineteenth century is particularly rich. Since the material is housed in Mr. Dana's home, permission should be obtained in advance to examine it. This is graciously given.

If more detailed information about any of the projects of material noted above is wanted, the compiler will be glad to put the inquirer in touch with the right person. If it is felt that this survey is of sufficient value, others might be undertaken after a suitable interval, possibly on a biennial schedule.

* * * * *

THE BRUTON CHURCH OF 1683 AND TWO CONTEMPORARIES - continued from page 46.

New World, but the building itself was not influenced by the needs of secular meetings. The Virginia church conformed to the great spiritual and liturgical tradition of the Church of England, the tradition led by Archbishop Laud; and likewise in this architecture the Virginia structures perpetuated the great tradition of English medieval church building.

* * * * *

WAR DAMAGE TO THE MONUMENTS HISTORIQUES

An announcement of the Ministry of Information in Paris dated November 2, 1944 reports that a survey conducted by architects for the Ministry of Fine Arts revealed that of a total of 17,000 buildings classified as historic monuments 8000 had sustained damage due to war. Happily most of these wounds were quite superficial and almost all the major structures can be completely restored. The ministry paid heartfelt tribute to the meticulously drawn town maps locating historic monuments which had been prepared by the Committee of the American Council of Learned Societies on the Protection of Cultural Treasures in War Areas, Professor William Bell Dinamoore, chairman. The announcement noted the efficacy of the combination of accurate maps and precision bombing as illustrated by the miraculous fact that the Cathedral and Episcopal Palace of Beauvais stand today intact in the midst of a sea of ruins. Professor Dinamoore's committee supplied the American armed forces with 695 carefully marked maps covering all European battle areas. Ninety-five maps have been prepared for use in Eastern Asia.

* * * * *

ANNUAL MEETING, NEW YORK CHAPTER

The New York Chapter, A.S.A.H., held their Annual Meeting on Wednesday evening, April 18, 1945, at the Institute of Fine Arts, Talbot Hamlin, Avery librarian, was reelected president for the coming year, with Agnes Addison Gilchrist as secretary-treasurer, and Dean Leo Arnaud as chairman of the program committee. The program for the evening was devoted to the historical development of American railroad stations. Professor Carroll L. V. Meeks, of Yale, indefatigable A.S.A.H. secretary-treasurer, gave an illustrated lecture on "The First Half Century of American Depots." Mr. Alfred Felheimer, New York architect, spoke at length on his experiences in designing several notable contemporary stations. Subsequent discussion was facilitated by refreshments.

* * * * *

OVERTAXED BRITISH ESTATES GIVEN TO NATIONAL TRUST

High income and inheritance taxes have wrought heavy toll on owners of British manor houses. Sir Kingsley Wood, chancellor of the exchequer, estimates that fewer than 70 Britishers now enjoy net annual incomes of more than \$24,000. Many old families have lost one or two heads during war years and have had to meet staggering death duties. Consequently more and more historic manor houses have been given to the National Trust. Occasionally the gift terms permit the donor to reside in all or part of the house during his lifetime. At first these manor houses were set up by the Trust as museums, but recently there is a trend toward leasing them to institutions, adult education groups,

holiday clubs, and even suitable business firms. Knole, the great seat of the Sackvilles at Sevenoaks in Kent, has been offered to the Trust, which is seeking some institution to use it and maintain at least some of the principal rooms intact. Wall Hall, J. Pierpont Morgan's house in Hertfordshire, with an estate of 1200 acres, has been bought by a farsighted county council and is being used as a weekend place for Londoners. Ultimately it may be transformed into an educational center. Blenheim is now a girls' school. To American preservationists this English trend recalls a parallel cycle in the disposition of the great estates lining the Hudson from Manhattan to Albany.

* * * * *

DEATH OF MANHATTAN ICONOGRAPHER

Isaac Newton Phelps Stokes, architect, housing expert, and authority on the history and topography of Manhattan, died in Charleston, S.C., on December 19, 1944, at the age of seventy-seven. Born in New York in 1867, the son of Anson Phelps Stokes, banker and philanthropist, he graduated from Harvard in 1891. After a year of banking experience, he entered Columbia University to study architecture. He completed his professional training by three years at the Ecole des Beaux Arts, and while there became interested in current Parisian concern for low-cost housing.

Returning to New York, he formed in 1897 a partnership with John Mead Howells. This firm designed many notable buildings, including St. Paul's Chapel at Columbia, Woodbridge Hall at Yale, the Baltimore Stock Exchange, the Title Guarantee and Trust Company Building, University Settlement, the American Geographic Society's Building, and numerous skyscraper office buildings.

In 1900 Mr. Stokes was appointed by Governor Theodore Roosevelt a member of the New York State Tenement House Commission. In 1901 he was named one of a committee of three to draft the Tenement House Law, one of the landmarks in American housing. His interest in this field continued throughout his life; he served from 1914 to 1924 as president of the Phelps Stokes Fund, a housing and educational foundation; and he prepared a detailed history of low-cost tenement planning in New York that appeared as an appendix in James Ford's Slums and Housing. During the first World War he served as an executive in the Bureau which later became the U. S. Housing Corporation.

Mr. Stokes' greatest monument was his encyclopaedic six-volume Iconography of Manhattan Island which combined an unexcelled wealth of illustration and a tremendous assembly of facts culled from early books and serials by a whole company of researchers. Few architectural facts in New York escaped him and every subsequent worker in this field will be in his debt. His superlative collection of American topographical town plans and views was placed on exhibit in the New York Public Library in 1927 and later presented to it. When this collection was scheduled for removal to bombproof shelters, Mr. Stokes, to the consternation of the staff, demanded and got a seat in the van that carried the treasures. The catalog of this collection fully demonstrated Mr. Stokes' passion for full statement and accurate detail.

His authoritative study of Manhattan led to appointment in 1911 as the architectural member of New York City's Art Commission. In 1929 he served as president of the Commission. He resigned in 1938.

* * * * *

INTERIOR RESTORATION OF JUMEL MANSION

On June 25, 1945, New York's architectural historians saw the restored interiors of the Jumel Mansion which had been carried out by Miss Nancy McClelland, past president of the American Institute of Decorators, for the custodians, the Washington Headquarters Association of the Daughters of the American Revolution. The Conference Room, where Washington's staff met before the battle of Harlem, the wide central Hall, and the Dining Room, where famous American and British leaders were entertained, have been completed. Other rooms will be reorganized later. Franco Scalamandre and Ernest Lo Nano reproduced special textiles for the work. Fine furniture of the period has been lent by private collectors and the Metropolitan Museum of Art.

* * * * *

CORRECTION ON POMPEII DAMAGE

An A.S.A.H. member serving in Italy writes that our last report of war damage at Pompeii was happily exaggerated. He found none of the buildings recorded as destroyed had been seriously damaged and that one had "to look hard to find any evidence whatsoever that war had ever come that way."

At San Lorenzo fuori-le-mura he saw the severely damaged facade, but "not destroyed by any means." At Bari a German bomb "skated in just missing the (cathedral) nave, clipped a minor hole in the Chapter House, and then blew a house across the street into a pile of rubble." We had reported San Nicola at Bari as slightly damaged, but he writes: "The day before the bombing, they were doing a lot of repair work on the roof. The inside of the church was full of scaffolding. Right after the bombing I went back to see what, if anything, had been damaged, and the only thing I could see was that the windows had been pushed in by the blast. I suspect that the person who turned in the report of damage saw the repair work going on and just assumed that it was due to war damage.... I had a guide there tell me only the other day that the repairs were necessary because of the bombardment. Hooley!"

* * * * *

CORYDON PURDY DIES

Corydon T. Purdy, pioneer in the development of modern steel-framed skyscrapers, died, aged eighty-five, on December 25, 1944, at Melbourne, Florida. Born at Wisconsin Rapids, Wis., Purdy graduated in civil engineering from the University of Wisconsin in 1885. After serving as city engineer at Eau Claire, he opened his own consulting practice in

Chicago in 1889, specializing in bridge design. He soon established his firm, Purdy and Henderson.

Chicago at that time was in the midst of expansion and was enjoying an unprecedented building boom of commercial structures. Purdy devoted more and more of his time to designing the structural frames of these early skyscrapers. It was under his supervision that the first structural steel frame was designed and erected for the Tacoma Building in 1890. The new developments received wide attention by engineers attending the Columbian Exposition in 1893. The following year Purdy opened his New York office and soon designed the structure of the old Waldorf-Astoria Hotel.

Other commissions soon followed: the Flatiron Building, the first steel frame in New York City, the Metropolitan Life Tower, the Municipal Building, the Whitehall Building, and the Times Building. For his paper describing the special solution adopted to overcome vibrations caused by the new subway just being constructed, he was awarded the Telford Premium Award by the Institute of Engineers of Great Britain. Purdy also designed the structures of the old Hippodrome in New York, the Marquette and McCormack Buildings in Chicago, the Bellevue-Stratford Hotel in Philadelphia, the new Willard Hotel in Washington, and the Capitol and Hotel Nacional in Havana.

* * * * *

IRVING'S SUNNYSIDE A NATIONAL SHRINE

Dr. Hugh Grant Rowell, president of the Historical Society of the Tarrytowns, announced on June 22, 1945 that Sunnyside, the home of Washington Irving, has been purchased for preservation as a national shrine and would be opened to the public probably in 1946. Louis du Pont Irving, great-grandnephew of the famous author, will continue to occupy a portion of the house. The acquisition of the historic suburban villa augments the Philipse Castle restoration of the Historical Society of the Tarrytowns, described by Dr. Rowell in the A.S.A.H. JOURNAL (January, 1944).

* * * * *

BOMB DAMAGE TO BRITISH MUSEUM

On January 16, 1945, Sir John Forsdyke, director of the British Museum, described to members of the Metropolitan Museum of Art the results to his great twelve-acre structure of four years of bombing. The Museum was hit by six high explosive bombs which did "comparatively little damage," but "countless" incendiary bombs caused fires which completely destroyed some sections of the group.

Art treasures had been stored in an unused portion of the Underground, and in the National Library of Wales. Rare books and manuscripts were deposited in an ancient stone quarry. The rest of the library, however, was considered "an instrument of war" and was not evacuated. In the glass roofed stacks around the rotunda reading room no protection could be expected, and fire destroyed thousands of volumes.

One heavy bomb registered a direct hit on the newspaper stack and of the 100,000 volumes of nineteenth-century papers stored there, 10,000 were completely destroyed, and 15,000 damaged.

Several upper stories of parts of the Museum burned off, but Sir John commented "it was high time we had some new buildings anyway."

* * * * *

PETE NOW AN HAWAIIAN HISTORIAN

The Pacific arena definitely has its brighter side and no doubt A.S.A.H. should be credited with some of the burnishing. Our indefatigable member--and one of our most enthusiastic--Lieutenant-Commander Charles E. Peterson, writes that the momentum acquired by founding the Thornton Society during his service in Washington has bubbled over in Honolulu and that ten days after his arrival in that enchanted isle he spoke to the local historical society on the architectural history of their territory. Let no one presume that this discourse was not based on faultless documentation! For accompanying the announcement came innumerable references and excerpts obtained by methodical perusal of nineteenth-century local newspapers, describing the mid-century infiltration of prefabricated sheet-iron sheds and cast-iron structures, as well as other strange, exotic innovations. No doubt the next letter will bring a bibliography on royal palaces constructed of feathers or pineapples. One is a bit appalled at the prospect of Thornton-like societies being established on every atoll of the South Seas.

* * * * *

MORVEN TO BE JERSEY GOVERNOR'S MANSION

Morven, an historic house in Princeton, N.J., built in 1701 by Richard Stockton, a founder of Princeton, has been purchased by Governor Walter E. Edge, who plans to present it to the state at the end of his term in 1947 for a Governor's Mansion. Located west of the Battle Monument, the house has sheltered Washington, served Cornwallis as headquarters, and was the official residence of Elias Boudinot, president of the Continental Congress.

* * * * *

CURRENT BIBLIOGRAPHY IN ARCHITECTURAL HISTORY; May-October, 1944.

Compiler, Ruth V. Cook, School of Design, Harvard University
Make-up; Turpin C. Bannister, Alabama Polytechnic Institute

Scheme of Classification

Bibliography

Periodicals

General; general histories, essays, exhibitions, views

Biography

Geographical; continents, countries, regions, towns, buildings.

Chronological; period, century, year.

Building Types; agricultural, commercial, residential, etc.

Structural; materials, structural systems, details, equipment.

Aesthetic; organization patterns, details, ornament, decor, arts.

Professional; arch. education, professional administration, econ.

Preservationism; damaged monuments, preservation, reconstruction.

Reviews of architectural books.

BIBLIOGRAPHY

- 227 Brazil; Recent publications on the fine arts of Portugal and
by R.C. Smith (Art Bul. v.26, p.124-8, Je '44)
Portugal, see 227.
228 South America; Bibliografía de arte español y americano, 1936-
40. by M. Lopez Serrano. Review (Archivo Esp. Arte, No.55,
p. 58-9 Ja '43)
Spain, see 228

PERIODICALS

GENERAL

- 229 criticism; Fry, E. Maxwell; Fine Building. London, Faber &
Faber, 1944. 156 p. il. plans, charts. See also R 51.
230 ---; What is wrong with architecture? by H.S. Goodhart-Ren-
del. il (Arch. & Bldg. News, v. 179, p. 69-72, 89-92,
105-6 Ag. 4, 11, 18 '44)
231 dictionary; Ware, Dora, and Betty Beatty; Short dictionary of
architecture. London, Allen & Unwin, 1944. 109 p. il.
See also R 44.
education, children. See R 41, R 42.
232 ---, liberal arts; Place of the history of art in the liberal
arts curriculum (Col. Art J. v.3, p. 159-61, My '44)
233 ---, professional; Basic teaching of architecture. by H. Dear-
styne. il (Lit. Arts, v. 12, p. 56-60 My '44)
234 ---, Briggs, Martin S.: The training of the architect;
a memorandum. London, H.M. Stationer's Off., 1943. 50 p.
51b. (Bd. of Educ, Educ. pam. no. 118)
235 ---; What are architectural students being taught? by
F.V. Murphy (AIA J. v.1, p. 58-61 F'44; Arch. & Eng.
v. 157, p. 35-6 Je '44; reply by D.K. Sargent, AIA J.
v. 1, p. 198-9 Ap '44)/
236 exhibitions; National Buildings Record (Gt.Brit.)Photos.
(RIBA J. s.3, v.51, p. 189, 205 Je '44)

- 237 —, —; Exhibition of a selection of photographs at the National Gallery. by John Summerson. il (Country L. Lond. v. 95, p. 942-5 Je 2 '44)
- 238 —, —; exhibition at the National Gallery (Arch & Bldg N. v. 178, p. 150 Je 9 '44)
- 239 —, —; NBR makes its bow. il. plan (Archs' J. v. 99, p. 442-4, 449-58 Je 15'44)
- 240 —, —, U.S. architecture; Built in U.S.A., 1932-44; exhibition at the Museum of Modern Art (Pen.P. v. 25, p. 56-65 Je '44) (Arch. For. v. 80, p. 81-96 My' 44)
- 241 —, —, N.Y.; In the red, the cost of living in N.Y. from 1710 to 1910; exhibition at Museum of City of N.Y. (Art Dig. v.18 p. 30, Jl '44)
- history, gen'l.; see also R 58 (rev. of Space, Time & Arch.)
- 242 —, —; History, broken categories, and architecture. by A.Mather. il (Pen.P. v. 25, p. 34-9 Jl '44)
- 243 —, —, metallic; Bannister, Turpin C.; Iron and architecture, a study in building and invention from ancient times to 1700. 338 p. bibliog. notes. typescript (Ph.D. dissertation, Harvard, 1944)
- 244 philosophy; Architecture has four dimensions. by K. Reid (Pen.P. v. 25, p. 39 Je '44)
- 245 —, —; What is architecture? by L.H. Sullivan (Repub. from Northwest Archt.) il. port. (J.ASAH. v.4, p 3-22 Ap'44)
- , —, see also R 60, R 61 (Mendelsohn)

BIOGRAPHY

- Algarotti, see 312.
- Becerra, Francisco, see 301
- Burlington, Lord, see 262.
- Cameron, Charles, see R 46, R 47.
- 246 Geddes, Patrick; Boardman, P.; Patrick Geddes. Introd. by L. Mumford. Chapel Hill, N.C., U. of N.C. press, 1944. 504 p. il. plans. port. bib. see also R 57.
- Kemp, G. Meikle, see 265.
- 247 Kent, William; Early life and letters of —. by M. Jourdain. il. port. (Country L. Lond. v. 96, p. 332-5 Ag 25 '44)
- Leoni, Giacomo, see 270
- Lodoli, see 312
- 248 Lutyens, Sir Edwin; — memorial (Arch. Rev. v. 96, p. xlvii S'44)
- 249 —, —; A committee has been set up to provide a memorial to — (Archs. J. v. 99, p. 153 Ag 31 '44)
- 250 —, —; Bust of —. by W.R. Dick (RIBA J. s. 3. v. 51, p. 161 My'44). see also 263
- 251 Martín de Novellón, El maestro. by J. Ramón Fernández. bib. pls. plans (Archivo Esp Arte No. 54, p. 336-348 N '42)
- Mendelsohn, Eric, see R 60, R 61
- Morris, William, see 320
- Mullet, A.B., see 295
- 252 Petrie, William Matthew Flinders (J. Egypt Archaeol. v. 29, p. 67-70 D '43)
- 253 Rodriguez, Ventura, y la escuela barroca romana. by F. Chueca Goitia. bib.pls.plans.diags (Archivo Esp Arte, no.52, p. 185-210 Jl'42; reply by J. Camón, no.59, p.350 S'43)

- 254 Ruiz Florindo, Alonso; Juan y _____, arquitectos del siglo XVIII en Fuentes de Andalucía. by A. Sancho Corbacho. bib. pls. (Archivo Esp Arte, no. 59, p. 333-45 s'42)
 Salt, Sir Titus, see 273
 Soane, Sir John, see 315
 Sullivan, Louis, see 245
 255 White, Thomas; Note on _____ of Worcester. by M. Whiffen. il. (Burl. Mag. v. 84, p. 124-7, My '44)
 Wyatt, James, see 266

GEOGRAPHICAL

EUROPE

- See 243 (Metal in archit.)
 Medieval, see R 56 (art), R 45 (churches)

France See R 49 (rococo)

- Caen, war damage, see 314
 Rouen, war damage, see 314
 St. Denis, Abbey, see R 38

Germany

- Berlin, war damage, see 316.

Greece

- See 243 (Metal in Gk. archit.)
 256 agora, Ionian. by R.E. Wycherley (J. Hel. Stud. v. 62 '42, p. 21-32) (Abstr. Am. J. Archaeol. v. 48, p. 187-8, Ap-Je '44)
 temples, see R 53
 257 Athens; Stoa and city wall on the Pnyx. by H.A. Thompson and R.L. Scranton (Hesperia v. 12 '43 p. 263-383) (Abstr. Am. J. Archaeol. v. 48, p. 188, Ap-Je '44)
 258 Crete, Knossos; Alleged fortifications. by A.W. Lawrence (J. Hel. Stud. v. 62 '42, p. 84-5) (Abstr. Am. J. Archaeol. v. 48, p. 186 Ap-Je '44)

Great Britain

- See R 46, R 47 (Cameron), 246, R 57 (Geddes), 247 (Kent, Wm.), 248, 249, 250 (Lutyens), 255 (White), 236, 237, 238, 239, (Nat'l. Bldgs. Record), 323 (National Trust), 305 (watermills), 309 (church plans, medieval), 334, 335 (churches, war damage), 321 (Georgian), 322 (architectural inheritance)
 259 churches; Williams, A.T.P.: Churches in Britain. London, Oxford U. press, 1944. 327 p. (Oxford pams. on home affairs).
 260 Bath; Conversion to flats of Georgian terrace houses in by C. Hussey. plans. il (Country L. Lond. v. 96, p. 552-5 S 29 '44)
 261 Blandford forum (color in buildings). by J. Piper. il (part color) (Arch. Rev. v. 96, p. 21-3 Jl '44)
 Bradley Manor (Devonshire) see 324
 Castle Head (Lancashire, Wilkinson's cast-iron monument, see 310.
 262 Chiswick; Lord Burlington's bijou, or sharawaggi, at _____ by H.F. Clark, il. plans. (Arch. Rev. v. 96, p. 125-9, My '44)
 263 Crooksbury (Surrey) (1st country house by Lutyens, 1890). I, II. il. plan (Country L. Lond. v. 96, p. 596-9, 640-3 O 6, 13 '44)

- 264 Devonshire; Warmth in the west (house painting in _____,
W. Dorset, Somerset) il (part color) (Arch. Rev. v. 96,
p. 89-91 S '44)
Dorset, see 264
Dulwich, picture gallery, by Soane, war damage, see 315.
- 265 Edinburgh; Scott monument and its architect (G.M. Kemp)
by W.F. Gray (Arch. Rev. v. 96, p. 26-9 J1 '44).
- 266 Fonthill Abbey (Wiltshire) by H.A.N. Brookman. il. plan
(Arch. Rev. v. 95, p. 149-156 Je '44)
- 267 Greys Court (Oxfordshire) I, II. by C. Hussey. il (Country L.
Lond. v. 95, p. 1080-3, 1124-7, Je 23, 30 '44)
Gunby Hall (Lincolnshire), see 325.
- 268 Harvington Hall (Worcestershire) (1569-78), I, II, III. by
C. Hussey. il. plan (Country L. Lond. v. 96, p. 200-3,
244-7, 288-91 Ag 4, 11, 18 '44)
Lacock Abbey (Wiltshire), see 326
Lindisfarne Castle (Holy Island), see 327
London, war damage, see 316
- 269 _____; Bank of England, 250th anniversary of its foundation.
by C. Hussey. il (Country L. Lond. v. 96, p. 156-8,
J1 28 '44)
_____; Lincoln's Inn, war damage, see 317.
- 270 Lyme Park (Cheshire) (1726; archit. Giacomo Leoni) il (Country
L. Lond. v. 96, p. 684-7 O 20 '44)
- 271 Richmond (Surrey); Argill House. by C. Hussey. il. plan.
elev. (Country L. Lond. v. 95, p. 992-5 Je 9 '44)
- 272 Richmond Green (Surrey), I, II. (Oak house, and old Palace
Place, c. 1760). by C. Hussey. il. meas. dwgs.
Country L. Lond. v. 95, p. 772-5, 816-9 My 5, 12 '44)
- 273 Saltaire (Yorkshire) model town, a letter (built 1850)
il (Country L. Lond. v. 96, p. 649 O '13 '44)
- 274 Shrewsbury, Medieval. by E. Walker. il (Country L. Lond.
v. 95, p. 1030-3 Je 16 '44)
Somerset, see 264.
- 275 Suffolk; Round towers of _____. by A. Jobson. il. (Country L.
Lond. v. 96, p. 282-3 Ag 18 '44)
Teapot Hall (Medieval cottage) see 313.
- 276 Timsbury (Somerset); Parish's house, I, II. by C. Hussey.
il (Country L. Lond. v. 96, p. 24-7, 68-71, J1 7, 14 '44)
- 277 Twickenham, I, II, III. Orleans house; the Octagon. by C.
Hussey. il. plan (Country L. Lond. v. 96, p. 420-3, 464-
7, 508-11, S 8, 15, 22 '44)
- 278 West Meon (Hampshire); Hall place, I, II. by C. Hussey.
il (Country L. Lond. v. 95, p. 860-3, 904-7 My 19, 26 '44)

Italy

- antiquities, see 319.
metal in Roman and medieval archit. see 243
war damage, see 316.
- 279 Montecassino. by F.V. Murphy (Arch. & Eng. v. 158, p. 28-30,
J1 '44)
_____; war damage, see 328
Naples; Angevin churches, war damage, see 318
Rome, necropolis at Porto de Roma, see R 54
- 280 _____; Temple above Pompey's theater. by D.K. Hill (Classical
J.v. 89, p. 360-5) (Abstr. Am. J. Archaeol. v. 48,
p. 193, Ap-Je '44)

- 281 Sardinia. By Doro Levi (Geogr. Rev. v. 33, '43, p.630-54)
(Abstr. in Am.J.Archaeol. v. 48, p. 192-193, Ap-Je '44)
Sicily, war damage, see 316, 319.
Southern Italy, war damage, see 316.

Portugal

See 227 (bib. of recent pub. on fine arts), R 50 (S. Paulo, Macao, China).

Russia

See R 46, R 47 (Cameron)

- 282 Kiev; Novgorod, Constantinople, and _____ in old Russian church architecture. il.plans.bib. (Slavonic and E. Eur. Rev. v. 22 '44, p. 75-92)
Novgorod, see 282.

Spain

See 228 (bib. of art, 1936-40), 251 (Martin de Novelúa), 253 (Ventura Rodriguez, baroque), 254 (Ruiz Florindo, Juan y Alonso), R 59 (Romanesque)

- 283 El Castro preromano. by A Fernández de Avilés. bib.
(Archivo Esp. Arq. no. 48, p. 251-6, Jl '42)
Andalucia, Fuentes de, see 254.
284 Archena; Notas sobre la necrópolis ibérica. by A. Fernández de Avilés. pls. (Archivo Esp. Arq. no. 50, p. 115-21 Ja '43)
Arguedas (Navarra), Castejón, excavations, see R 43.
285 Lugo; Jornadas románicas por tierra de _____. by J. Ramón y Fernández. pls. plans (Archivo Esp. Arte no. 58, p. 239-63 Jl '43)
Murcia, architectts, see R 55.
Ovila; Monastery of Santa Maria, see 336.

Turkey

Constantinople, see 282.

AFRICA

Egypt See 252 (Petrie)

South Africa

- 286 South African architecture from 1700 to 1930. il. (Arch. Rev. v. 96, p. 95-106, S '44)

West Africa

- 287 Machine for living (prefab. House) in 18th-century West Africa. by G. Kubler. il. bib. (J. ASAH. v.4, p.30-33, Ap '44)

ASIA

China See R 50 (facade, S. Paulo, Macao)

Iraq

- 288 Babylon; Dore's _____. by M. Rose. il. (Arch.Rev. v. 96, p.8-18, Jl '44)

Palestine

- 289 Jerusalem; Damaged blueprints of the Temple of Solomon. by L. Waterman. pl. bib. (J.Near East Stud. v. 2, p. 284-94, O '43)

NORTH AMERICA

United States

See 240 (exhib.), 245 (Sullivan), R 52 (Greek Revival), 303(modern).

U.S., Northeastern States

- See 330 (Soc. Pres. N. Eng. Antiq.)
290 Toward an old architecture. by R.W. Kennedy. il. (Pen.P. v. 25, p. 78-83 Ag '44)
291 Connecticut; Hayes, Marian: Life and architecture in the Valley. 223 p. typescript, maps, town plans, charts, bib. (Ph. D. dissertation, Harvard, 1944)
292 Massachusetts, Barnstable, Unitarian Church (1837). View from old print (Antiq. v. 46, p. 222 O '44)
293 New Hampshire, Durham, in 1825 (O. Time NE, v. 34, p. 55-8, Ap '44)
294 Rhode Island, Providence; Stephen Hopkins house. il. (Antiq. v. 46, p. 210-11 O '44)

U.S., Middle Atlantic States

- New York; see 331, 332 (preservationism)
New York City, see 241 (exhib.)
Pennsylvania; Ephrata, Cloisters, see 333 (medieval construction)

U.S., Pacific Coast States

- 295 California, San Francisco, Appraisers Building (1874, A.B. Mullet, archit.); Building site marks historical landmark. by G.P. Hales. il. (Arch. & Eng. v. 157, p. 29-30 Je '44)

LATIN AMERICA

Central America

- 296 city planning; Leipziger, Hugo: The Architectonic City in the Americas. Austin, Tex., U. of Texas, 1944 (U. of Tex. pub. no. 4407) 110 p. pls. plans. see also R 39, R 40.

Guatemala

- 297 Some church facades of colonial _____. bib. (Gaz BA s.6, v.25, p. 64 Ja '44)
298 Some church facades of colonial _____. by P. Keleman. bib. il. (Gaz. BA, s.6, v.25, p. 113-26 F '44)

Mexico

- 299 Mexico City; Una casa habitación del siglo XVIII en la ciudad de México. (Casa número 18 de la antigua calle de la Monterilla) México, D.F., (Talleres de la Editorial cultura), 1939. 71 p. il (part color) 5 fold pl. (Congreso internacional de americanistas. Homenaje al XXVII).

South America

See 228 (bib. of recent pub. Spanish Amer. art)

Brazil See 227 (bib. of recent pub. on arts)

Peru

- 300 archaeology; Strong, William Duncan, et. al.: Archaeological studies in Peru, 1941-42. N.Y., Columbia press, 1943.
301 Arquitectura colonial; Francisco Becerra. by E. Marco Dorta, bib. pls. (Archivo Esp. Arte no.55, p.7-15 Ja'43)

CHRONOLOGICAL

Prehistoric: Spain; 283)Preroman camp), 284(Archena necropolis)

Ancient: 243 (metal in archit.); Egypt: 252 (Petrie); Palestine: 289 (Solomon's temple); Greece: 256 (agora, Ionian), R 53 (temples), 257 (Athens, Pnyx, stoas and wall), 258 (Knossos, fortifications); Roman: 306 (theaters), 280 (Rome, temple, Pompey's theater), R 54 (Rome, necropolis).

Medieval: 243 (metal in archit.); R 56 (medieval art), R 45 (early medieval churches); Byzantine: 282 (Constantinople, Kiev, Novgorod); Carolingian: R 38 (St. Denis); Romanesque: Spain, R 59, 285 (Lugo); Gothic: 318 (Italy, Naples); Great Britain: 308 (church planning), 313 (Teapot Hall), 274 (Shrewsbury), 324 (Manor house); Ancient America: 296, R 39, R 40 (city plans), 300 (Peru archaeol.).

Renaissance: 243 (metal in archit.)

16th Cent.: 243 (metal in archit.); 253 (Spain, baroque); 268 (Gt. Brit., Harvington Hall).

17th Cent.: 243 (metal in archit.)

18th Cent.: France: R 49 (rococo), 311 (classic rev.); Gt. Brit.: 247 (Wm. Kent), 260 (Bath, houses), 262 (Chistrick), 315 (Dulwich house), 266 (Fonthill), 269 (London, Bank), 270 (Lyme Park), 272 (Richmond Green); Italy: 312 (nationalism); Russia: R 46, R 47 (Cameron); Spain: 254 (Ruiz Florindo); Africa: 286 (South Af.), 287 (prefab. houses); U.S.: 241 (N.Y. exhib.), 294 (Hopkins house, Providence, R.I.), 291 (Connecticut houses), 333 (Pennsyl., Ephrata, Cloisters); Latin America: 297, 298 (Guatemala church facades), 299 (Mexico City, house), 301 (Peru).

19th Cent.: R 58 (Space, Time, & Arch.); France: 288 (Doré); Great Britain: 263 (Crooksbury, house by Lutyens), 265 (Edinburgh, Scott Monument), 273 (Saltaire), 310 (cast-iron monument).
302 In the modern Gothic manner. by M. Whiffen. il. (Arch. Rev. v. 96, p. 2-4 J1 '44)
South Africa: 286; U.S.: R 52 (Greek Rev.), 241 (N.Y. exhib.), 292 (Barnstable, Mass., Unitarian Church), 293 (Durham, N.Hamp.), 295 (San Francisco, Appraisers Bldg.).

20th Cent.: R 58 (Space, Time, & Arch.), R 48 (city plan), 240 (U.S., modern), 245 (Sullivan), 246, R 57 (Geddes), 248, 249, 250 (Lutyens).

303 Zucker, Paul, ed.: New Architecture and City Planning; a symposium. N.Y., Philosophical Library, 1944. 694 p. il. plans. charts.

BUILDING TYPES

City Planning: 246, R 57 (Geddes), 303, R 48 (modern), 273 (Saltaire), 292 (Barnstable, Mass.), 293 (Durham, N.H.), 296, R 39, R 40 (ancient America)

304 historical survey: We must formulate a visual planning policy. by G.M. Kallmann and Ian McCallum. il.bib. (Archts. J. v. 99, p.403-20 Je 1 '44)

Commercial: Markets: 256, 257 (Greek); Banks: 269 (Bank of England)

Funerary: Necropoli: R 54 (Rome), 284 (prehist. Iberian); Monuments: 310 (cast iron, Wilkinson), 265 (Edinburgh, Scott).

Governmental: 295 (San Francisco, Appraisers Bldg.)

Industrial:

305 Watermills and their uses. by J.D.U. Ward. il. (Country L. Lond. v. 96, p. 194-6 Ag 4 '44)

Military: 257 (city wall, Athens), 258 (Cnossus, alleged fortifications), 283 (Preroman castro, Spain).

Recreational: 280 (Pompey's theater, Rome).

306 theaters, Roman; Notas antiguas y modernas sobre las ruinas de teatro romano. il.pls.plans.diags. (Archivo Esp. Arq. no. 51, p. 210-27 Ap '43)

Religious: Temples: 289 (Solomon's), R 53 (Greek); Churches:

307 The expression of religion in architecture. by Kenneth John Conant. (Chap. II, p. 71-89 in Bailey, Albert Edward, ed.: The arts and religion. N.Y., Macmillan, 1944. 180 p. pls. plans. Ayer lectures, Colgate-Rochester Divinity School, 1943)

308 cathedrals; Malden, R.H.: Growth, building and work of a cathedral church. London, Oxford U. press, 1944, 48 p. il.

309 Note on English church planning in the Middle Ages. by H. Rosenau. bib. il. (RIBA.J. series 3, v. 51, p. 206-7, Je '44)

See also R 45 (early medieval churches), R 38 (St. Denis, Abbey), 259 (British churches), 334, 335 (British churches, war damage), 318 (Naples, Angevin churches), 336 (Ovila, S. Maria), 297, 298 (colonial Guatemala).

Residential: Great Brit.: 264 (Devonshire, Dorset, Somerset), 260 (Bath), 324 (Bradley Manor), 262 (Chiswick), 263 (Crooksbury), 266 (Fonthill), 267 (Grey's Court), 268 (Harvington Hall), 325 (Gunby Hall), 326 (Lacock Abbey), 327 (Lindisfarne), 270 (Lyme Park), 271 (Argill House), 272 (Richmond Green), 313 (Teapot Hall), 276 (Parish's House, Timsbury), 277 (Trickenhham, Octagon), 278 (Hall Place, West Moon); Africa: 287 (prefab. house); U.S.: 291 (Connecticut), 294 (Hopkins House, Providence, R.I.); Mexico: 299 (18th c. house).

STRUCTURAL

See 303 (modern dev.), 287 (18th c. prefab. house), 313 (medieval timber), 243 (use of iron in building construction).

310 cast-iron monument of John Wilkinson, 1808; A cast-iron burial, a letter. il. (Country L. Lond. v. 95, p. 782, My 5 '44)

AESTHETIC

Organization patterns: see 290 (historical and regional precedents).

311 classicism, Romantic classicism in architecture. by F. Kimball. bib.il.plans (Gaz.BA,s.6, v.25,p.95-112 F'44)

312 rationalism, At an eighteenth century crossroads: Algarotti vs. Lodoli. by Emil Kaufmann. bib. (J.ASAH. v.4, p. 23-29 Ap '44)
rococo, see R 49

Details: facades; 297, 298 (colonial churches, Guatemala).

Ornament: 261, 264 (use of color for building exteriors)

PROFESSIONAL

PRESERVATIONISM

Damage to Historic Buildings

- 313 Teapot Hall (il. of ruins as it looks today). (Country L. Lond. v. 96, p. 436, S 8 '44).
- 314 war damage, France; Caen and Rouen (Arch. Rev. v. 96, p. xlv, S '44)
- , Germany, Berlin, see 316.
- 315 —, Gt. Brit.; Dulwich picture gallery in ruins. il. (Archs. J. v. 99, p. 155, Ag 31 '44)
- 316 —, London (J. ASAH, v. 4, p. 42-3, 52 Ap '44)
- 317 —, —; Flying bomb attacks Lincoln's Inn. (Archs. J. v. 99, p. 169, S 7 '44)
- , Italy, see 316, 319
- 318 —, Naples; An official account of the state of the Angevin churches. il (Country L. Lond. v. 96, p. 72-3 J1 14 '44)
- 319 —, North Africa; Mediterranean antiquities. by J.G. Mann (London Times, Ja 13 '44) (Abstr. in Am. J. Archaeol. v. 48, p. 193-4 Ap-Je '44)

Preservation

- 320 William Morris on the preservation of historic monuments. by J. Coolidge (J. ASAH, v. 4, p. 34-6 Ap '44)

Great Britain

- Bath, Georgian terrace houses. see 260.
- 321 Georgian architecture and replanning. (Country L. Lond. v. 96, p. 148, J1 28 '44)
- National Buildings Record, exhibition, see 236, 237, 238, 239.
- 322 Godfrey, Walter H.; Our building inheritance. Are we to use or lose it? London, Faber and Faber, 1944. 87p. il.
- 323 National Trust, Report 1943-44. London, National Trust, 7 Buckingham Palace Gardens, S.W.1., 1944.
- 324 —; Bradley Manor, Devon (15th c; manor given to —, 1938). by J. Lees-Milne. (Country L. Lond. v. 96, p. 377-9 S 1 '44)
- 325 —; Gunby Hall, Lincolnshire, ... has been given to —. (Archts. J. v. 99, p. 441, Je 5 '44)
- 326 —; Lacock Abbey, Wiltshire, given to —. by Matilda Talbot. il. (Country L. Lond. v. 96, p. 193, Ag 4 '44)
- 327 —; Lindisfarne Castle, Holy Island, given to —. by Edward de Stein. il. (Country L. Lond. v. 95, p. 809, My 12 '44)

Italy

- 328 Monte Cassino; Eisenhower's order concerning monuments of civilization. by F.H. Taylor (Met. Mus. Bul. v. 2, p. 225-6 Ap '44)

United States

- 329 Conservation Department, State of Michigan; Laws relating to conservation. 1943 (revision compiled under supervision of P.J. Hoffmaster). 306 p.
- 330 New England; Real estate properties of the Society for the Preservation of New England Antiquities. by W.S. Appleton (Old Time NE, v. 32, p. 107-18; v. 33, p. 66-73; v. 34, p. 67-74 Ap '42, Ap '43, Ap '44)

- 331 New York; Cultural sites are placed under State Education Department (Mus. News, v.22, p.1, Je 5 '44)
- 332 —; Preservationism in New York State. by J.J. Vrooman (J.A.S.A.H. v.4, p. 37-41, Ap '44)
- 333 Pennsylvania, Ephrata; Medieval construction at —. by G.E. Brumbaugh. il. (Antiques, v. 46, p. 18-20, Jl '44)

Reconstruction

Great Britain

- 334 churches; Britain's war-damaged and destroyed —, scheme for rebuilding and repair (Arch. & Bldg. N. v. 178, p. 111-2 My 19 '44)
- 335 —; some of Britain's 14,000 bombed — may be rebuilt on new sites (Archts. J. v.99, p. 380-1 My 25 '44)

United States

- 336 California; From Spain to California. Ancient monastery (Santa Maria de Ovila) to rise again. il.plans (Arch. & Bldg.N. v. 158, p. 31-36 Jl '44)

REVIEWS OF BOOKS ON ARCHITECTURAL HISTORY

- R 38 Abbey of St. Denis, 475-1122, vol. I. by S.M. Crosby. (Am. J. Archaeol. v. 48, p. 218-221, Ap-Je '44, by R. Krautheimer)
- R 39 Architectonic city in the Americas. by H. Leipziger (Arch. & Eng. v. 157, p. 13 My '44)
- R 40 (Arch. Rec. v. 95, p. 26 My '44)
- R 41 Architecture for children. by J. & M. Fry (Arch. Rev. v. 96, p. 92 S '44 by children)
- R 42 (Archts. J. v. 99, p. 424-5 Je 8 '44)
- R 43 Arguedas. Excavaciones en Navarra: Exploración de Castejón de Arguedas. by B. Tarazona Aguirre and L. Vázquez de Parga. (Archivo Esp. Arq. no. 51, p. 246-8 Ap '43)
- R 44 A short dictionary of architecture. by D. Ware and B. Beatty. (Arch. & Bldg. N., v. 180, p. 29, O 13 '44)
- Books on Spanish and Latin American art. See 228.
- Books on Portuguese and Brazilian art. See 227.
- R 45 Brief commentary on early medieval church architecture. by K.J. Conant (Gaz. BA. s.6, v.26, p.62-3 Ja '44)
- R 46 Charles Cameron. by G.K. Lukomski. (Arch. Rev. v. 95, p. 167, Je '44)
- R 47 — (J. RIBA, s.3, v. 51, p. 153, Ap '44) Reply to author (v. 51, p. 213, Je '44)
- R 48 Can our cities survive? by J.L. Sert (Burl. Mag. v. 84, p.155, Je '44)
- R 49 Creation of the Rococo. by Fiske Kimball (J. RIBA, s.3, v. 51, p. 152 Ap '44)
- R 50 Fachada de S. Paulo (Macao, China). by M. Teixeira. (Art Bul. v. 26, p. 126-7 Je '44)
- R 51 Fine building. by M. Fry (Studio, v. 128, p.64 Ag '44)
- R 52 Greek revival architecture in America. by T. Hamlin. (Arch.For. v. 80, p. 26, My '44)
- R 53 Greek temples. by I.H. Grinnell (Am.J. Archaeol. v.48, p. 212-3, Ap-Je '44 by R. Stillwell)
- R 54 Le Necropoli del Porto de Roma nell' Isola Sacra. by G. Calza (Am.J.Archaeol. v.48, p.212-8, Ap-Je '44 by H. Bloch)

- R 55 Maestro de arquitectura en Murcia. by J. Sanchez Moreno
(Archivo Esp. Arte, no. 56, p. 124, Mr '43)
- R 56 Medieval art. by C.R. Morey (Speculum, v.19, p.365-6,
Jl '44 by K.J. Conant)
- R 57 Patrick Geddes, maker of the future. by P. Boardman
(Arch. & Eng. v. 157, p. 36, O '44)
- R 58 Space, Time and Architecture. by O. Giedion (Art Bul. v.26,
p. 134-8 Jo '44 by T.C. Bannister)
- R 59 Spanish Romanesque architecture of the eleventh century. by
W.M. Whitehall (Speculum, v.19, p.336-71, Jl '44 by
J.J. Conant)
- R 60 Three lectures on architecture. by E. Mendelsohn
(Arch.For. v.81, p. 156, Jl '44)
- R 61 — (Arch. Rec. v. 96, :. 26, Jl '44)

